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TO READERS AND CORRESPONDENTS.

Dr. Evans's very interesting paper shall have a place in our next No.

The following works have been received:—

Elements of Medical Jurisprudence. By Theodoric Romeyn Beck, M. D. Professor of Materia Medica and Medical Jurisprudence, in the College of Physicians and Surgeons of the Western District of the State of New York, and John B. Beck, M. D. Professor of Materia Medica and Medical Jurisprudence, in the College of Physicians and Surgeons, New York. Sixth edition. Philadelphia, Thomas Cowperthwait and Co. 1838, 2 vols. 8vo. (From the publishers.)

First Principles of Medicine. By Archibald Billing, M. D. A. M. &c., &c. Third edition, considerably enlarged and improved. London: 1838. (From the author.)

A treatise on the diseases produced by Onanism, Masturbation, Self-pollution, and other excesses. By L. Deslandes, M. D. Translated from the French, with many additions. Boston: Otis, Broaders and Co., 1838, 12mo. (From the publishers.)

On the Liquefaction and Solidification of Carbonic Acid. By J. K. Mitchell, M. D. (From the author.)

A Case of Osteo-Sarcoma, with remarks, addressed to Valentine Mott, M. D. By Dr. E. H. Dixon. New York: 1838. (From the author.)

Introductory Address delivered at the opening of the session of the Medical College of Georgia, on the second Monday of November, 1838. By Joseph A. Eve, M. D., Professor of Therapeutics and Materia Medica. Published by the Class. Augusta: 1838. (From the author.)

Minutes of the Proceedings of the Medical Society of Tennessee, at the ninth annual meeting, held in Nashville, May, 1838. (From the Society.)

An Appeal to the people of Pennsylvania on the subject of an Asylum for the Insane Poor of the Commonwealth. (From Dr. Dunglison.)

Introductory Lecture delivered at the opening of the Albany Medical College, in the Anatomical Theatre, January 2, 1839. By David Meredith Reese, A. M. M. D. Professor of the Theory and Practice of Physick and Clinical Medicine. Published by request of the Class. Albany: 1839. (From the author.)

Introductory Lecture, delivered at the Willoughby Medical College of the Willoughby University of Lake Erie, 1837-8. By Ralph Granger, Esq., President. Painesville: 1837. (From Prof. S. W. Williams,)

Catalogue of the Officers and Students of Dartmouth College, September, 1838. Windsor, 1838. (From S. W. Williams.)

An Introductory Lecture to a course of lectures on the Theory and Practice of Medicine, in the University of Pennsylvania, delivered at the opening of the session of 1838-9. By N. Chapman, M. D. Professor, &c. Philadelphia: 1838. (From the author.)

The Reformation of Medical Science, demanded by the Inductive Philosophy: a discourse delivered before the "New York Physicians' Society," on their

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Anniversary, November 21, 1838. By WILLIAM CHANNING, M. D., New York, 1839. (From the author.)

Transactions of the Medical and Physical Society of Calcutta, vol. viii, pt. 1. Calcutta: 1836. (From the Society.)

The Quarterly Journal of the Calcutta Medical and Physical Society; edited by the secretaries, H. H. GOODEVE M.D., Prof. of Anat. and Med.; W. B. O'SHAUGHNESSY, M.D., Prof. Chem. and Mat. Med. in Med. Col., Calcutta. Nos. 1, 2, 3, 4 and 5. Calcutta: 1837-8. (From the Society.)

The India Journal of Medical and Physical Sciences, from Jan., 1837, to August, 1838. (In exchange.)

Archives Générales de Médecine, Journal complémentaire des Sciences Médicales, June, July, Aug., 1838. (In exchange.)

Revue Médicale Française et Etrangere, Journal des Progres de la Médecine Hippocratique, June, July, 1838. (In exchange.)

Journal de Médecine et de Chirurgie Pratiques. June, July, August, 1838. (In exchange.)

Bulletin Général de Therapeutique Médicale et Chirurgicale. June, July, August, 1838. (In exchange.)

Journal des Connaissances Médico Chirurgicales. July, Aug., 1838. (In exchange.)

Journal des Connaissances Médicales Pratiques et de Pharmacologie. June, July, August, 1838. (In exchange.)

Gazette Médicales de Paris, June, July, August, 1838. (In exchange.)

La Lancette Française, Gazette des Hôpitaux Civils et Militaires. Jan. to August, 1838. (In exchange.)

Journal de Pharmacie et des Sciences Accessoires. July, August, 1838. (In exchange.)

Zeitschrift für die gesammte Medicin. mit besonder Rücksicht auf Hospitalpraxis und ausländische Literatur. Heraüsgegeben von J. C. G. Fricke und F. W. Offenheim. Sept. and Oct. 1838. (In exchange.)

The London Medical Gazette: July, August, and Sept., 1838. (In exchange.)

The Edinburgh Medical and Surgical Journal for October, 1838. (In exchange.)

The Medico-Chirurgical Review for Oct., 1838. (In exchange.)

The British and Foreign Medical Review; or, Quarterly Journal of Practical Medicine and Surgery. Oct., 1838. (In exchange.)

The Boston Medical and Surgical Journal, for Nov. and Dec., 1838, and Jan., 1839. (In exchange.)

The Southern Medical and Surgical Journal, Nov. and Dec., 1838, and Jan., 1839. (In exchange.)

The Medical Examiner, for Nov. and Dec., 1838, and Jan., 1839. (In exchange.)

The American Medical Library and Intelligencer, for Nov. and Dec., 1838, and Jan. 1839. (In exchange.)

The Select Medical Library and Eclectic Journal of Medicine, Nov, and Dec. 1838, and Jan. 1839. (In exchange.)

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An Inaugural Dissertation on the Morbid Changes occurring in the Articular Cartilages. By L. H. Schumer, Jr. - - - - 428

XV. Dissertatio Medica Inauguralis, de Effectibus Tumorum uteri fibrosorum et Symptomatibus quæ iidem provocant. Auctore Johanne Roemer. Groningen, 1837. 8vo. pp. 44.

An Inaugural Dissertation on Fibrous Tumours of the Uterus, and the symptoms, and morbid changes to which they give rise. By J. A. Roemer. - - - - - - - - - 429

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Medical Education. An Address delivered before the Medical Society of Tennessee, at its annual meeting, at Nashville, on the 7th May, 1838. By Lunsford P. Yandell, M. D. Published at the request of the Society. pp. 20. 8vo. - - - - - - - - 437

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ERRATA.

Page 18, line 24 from top, for "coats of the aorta," read "*serous, and through the internal lamina of the muscular coat.*"
" 18, " 2 from bottom, for "February, 1828, p. 81," read "January, 1838, Vol. I. No. 1. N. S."
" 231, " 9 " " for "caused," read "*cured.*"
" 274, " 4 " top, for "sprians," read "*sprains.*"

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TO READERS AND CORRESPONDENTS.

Our readers will perceive, from the present Number, that several changes, and we trust improvements, have been made in this Journal. The most important of these is the introduction of a new department—that of Monographs. In this department it is intended to insert a series of elaborate articles, of a similar character to those in the American Cyclopædia of Practical Medicine and Surgery; the publication of which, it is hoped, will lessen the regret generally expressed at the suspension of that work. A select Bibliography will in future be appended to each of these articles.

Among the minor improvements may be mentioned an enlargement of the page, and a more distinct type.

This Journal originated under the influence of physicians belonging to different states, and most of the Medical Schools of the Union, and has been exclusively devoted to the honour and advancement of professional reputation and usefulness, unshackled by sectional, personal or party feelings. The object of its institution was to form a great *National Work*, one which should conduce to the improvement and elevation of the profession at home, and tend to render it better known and more respected abroad. The complimentary manner in which this Journal has been everywhere received, and the frequency with which it is quoted by foreign writers—the extensive patronage accorded to it—the respectability and number of the contributors to its pages, comprising a large portion of the most distinguished men in the various portions of the union, and professors in different schools—above all, the great extension and advancement of medical literature amongst us since its commencement, would seem to justify the conclusion that the objects of the Journal have not been wholly unattained.

Encouraged by this belief, and under the guidance of the same catholic and elevated views of duty by which he has hitherto been actuated, the editor (the original projector of this Journal) will undeviatingly continue the course thus far pursued. With renewed ardour in the cause—the advantage of eleven years experience, and the assistance of his numerous, able, and zealous collaborators, he trusts to be able still further to promote the great interests of the profession, and the cause of truth and science.

The profession *throughout the country* are invited to sustain the work; in its success all who desire the *real* advancement of medical science, and the elevation of professional character, are deeply interested.

Communications have been received from Drs. Annan, Flint, and Walter.

Dr. Annan's report reached us too late for the present number.

To M. Civiale our special acknowledgments are due for his complimentary letter, and for the copy with which he has favoured us of his various writings on Lythotripsy. These valuable works we shall take great pleasure in making known to the profession in this country through the medium of a review, at an early period.

The following works have been received:—Rapport sur le Choléra Morbus de Moscou. Par F. C. M. Markus, Sect. du Conseil temp. de Med., &c., &c. Moscou, 1832, 4to. (From Dr. Oppenheim.)

Grundriss der Speciellen Semiotik, nach den Quellen bearbeitet. Von Dr.

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Heinrich Emil Suckow, Kreisphysikus in Jauer. Jena, 1838. (From Dr. Oppenheim.)

Ueber den Unterschied Zwischen todten Naturkraften, Lebenskraften und Seele. Von J. L. C. Schroeder Van Der Kolk, Prof. der Medicin zu Utrecht. (From Dr. Oppenheim.)

The Medical Formulary: being a collection of prescriptions, derived from the writings and practice of many of the most eminent physicians in America and Europe, &c. By Benjamin Ellis, M.D. Fifth edition, with additions. Philadelphia, Carey, Lea & Blanchard, 1838. (From the publishers.)

Human Physiology, illustrated by engravings. By Robley Dunglison, M.D., &c.. &c. Third edition, with numerous additions and modifications. Philadelphia. Lea & Blanchard. (From the publishers.)

The Surgeon's Practical Guide in Dressing, and in the Methodic Application of Bandages. Illustrated by numerous engravings. By Thomas Cutler, M.D. Late staff-surgeon in the Belgian army. Philadelphia: Haswell, Barrington & Haswell, 1838. (From the publishers.)

A Report founded on the Cases of the Typhoid Fever, or the Common Continued Fever of New England, which occurred in the Massachusetts General Hospital, from the opening of that institution, in September, 1821, to the end of 1835; communicated to the Massachusetts Medical Society in June, 1838. By James Jackson, M.D., late attending physician in that hospital, Boston. Whipple & Damrell, Boston, 1838. (From the publishers.)

Transylvania Catalogue of Medical Graduates, with an appendix, containing a concise history of the school from its rise to the present time. Lexington, 1838. (From the faculty.)

Catalogue of the Officers and Students of the University of Virginia—session of 1837-8. Charlottesville, Va., 1838. (From Professor Griffith.)

Annual Announcement of Jefferson Medical College, for the session of 1838-9. Catalogue of Students and Graduates for the session of 1837-8. Philadelphia, 1838.

A brief Review of Dr. Hornor's "Necrological Notice" of Philip Syng Physick, M.D. Philadelphia, 1838. (From the author.)

Report of the Surgical Cases and Operations that occurred in the Massachusetts General Hospital, from May 12, 1837, to May 12, 1838. By George Hayward, M.D., surgeon to the hospital. Boston, 1838, pp. 32, 8vo. (From the author.)

A Discourse on the importance of a knowledge of Anatomy, Physiology, and Hygiene, delivered at the Auburn Female Seminary, May 30, 1838. By F. H. Hamilton, A.M., M.D. Auburn, 1838. (From the author.)

Medical Education. An address delivered before the Medical Society of Tennessee, at its eighth annual meeting, at Nashville, on the 7th of May, 1838. By Lunsford P. Yandell, M.D. Published at the request of the society. (From the author.)

Lettre a M. le Chevalier Vincent de Kern, Premier Chirurgien de S. M. I. et R. L'Emperéur d'Autriche, en Reponse an un écrit ayant pour titre: Reflexions sur la nouvelle Méthode de MM. Civiale et le Roy, pour broyer et extraire les calculs vésicaux. Par Le Docteur Civiale. Avec une planche. Paris, 1837. (From the author.)

Lettres sur la Lithotritie or l'art de Broyer la Pierre. Par Le Docteur Civiale. Quatrième lettre. Paris, 1836. Cinquième lettre. Paris, 1837. (From the author.)

Quelques Remarques sur la Lithotritie. Par Le Docteur Civiale, Membre de l'Academie. [Extrait des Memoires de l'Academie Royale de Médecine.] Paris. (From the author.)

Parallèle des divers moyens de Traiter les Calculeux, contenant l'examen com-

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paratif de la Lithotrie et de la Cystotomie, sous le rapport des leurs divers procédés, de leur modes d'application, de leurs advantages ou inconvéniens respectifs. Par Le Docteur Civiale. Avec trois planches. Paris, 1836. (From the author.)

Traité de l'affection Calculeuse, ou Recherches sur la formation, les caractères physiques et chimiques, les causes, les signs et les effets pathologiques de la Pierre et de la Gravelle, suivies d'un Essai de Statistique sur cette Maladie, avec cinq planches. Par Le Docteur Civiale. Paris, 1838. (From the author.)

C. W. Hufeland Neue Auswahl kleiner medizinischer Schriften. Erster Band. Berlin, 1834. (From Dr. Oppenheim.)

Dissertatio Medica Inauguralis, de effectibus tumorum uteri fibrosorum et symptomatibus quæ iidem provocant. Auctore J. A. Roemer. Groningæ, 1836. (From Dr. Oppenheim.)

Dissertatio Medica Inauguralis, de cartilaginum articularium ex morbes mutatione. Auctore L. H. Schumer, Jr. Groningæ, 1836. (From Dr. Oppenheim.)

Quatorzième compte rendu annuel de l'hospice de St. Petersbourg pour les Maladies d'yeux. Depuis le 1er Mai, 1837, jusqu 'au 1er Mai, 1838. (From Dr. Oppenheim.)

Zur Jubel-feier des Professor emeritus Dr. Johann Busch, in St. Petersburg, am 26sten Mai, 1838. (From Dr. Oppenheim.)

Human Physiology, for the use of Elementary Schools. By Charles A. Lee, M.D., Professor of Materia Medica in the University of the city of New York. New York, 1838. (From the author.)

Wilheim Stokes, Doctors der Medicin, &c. Abhandlung über die Diagnose und Behandlung der Brust-Krankheiten. Krankheiten der Lunge und Luftröhre. Aus dem Englischen von Gerard von dem Busch, D.M. und C. &c. Bremen, 1838. (From the translator.)

A Treatise on the Physical and Medical Treatment of Children. By William P. Dewees, M.D., &c. Seventh edition, with corrections. Philadelphia. Lea & Blanchard, 1838. (From the publishers.)

Elements of Physics, or Natural Philosophy, General and Medical. By Neil Arnott, M.D. Fourth American from the fifth English edition—with additions. By Isaac Hays, M.D. Philadelphia. Lea & Blanchard, 1838. (From the publishers.)

The British and Foreign Medical Review, and Quarterly Journal of Practical Medicine and Surgery, July, 1838. (In exchange.)

The London Medical Gazette, April, May, June, 1838. (In exchange.)

The Continental and British Medical Review or Monthly Therapeutical Journal. Edited by M. Bureau Riofrey, M.D. March to December, 1837. (In exchange.)

The Edinburgh Medical and Surgical Journal, for July, 1838. (In exchange.)

The Medico-Chirurgical Review, July, 1838. (In exchange.)

Zeitschrift fur die gesammte Medicin, Hamburg, January to June, 1838. (In exchange.)

Archives Générales de Médecine, August to December, 1837, and January to May, 1838. (In exchange.)

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Gazette Médicale de Paris, April, May, June, 1838. (In exchange.)

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Bulletin Général de Thérapeutique Médicale et Chirurgicale, April, May, 1838. (In exchange.)

Journal des Connaissances Médico-Chirurgicales, May, June, 1838. (In exchange.

Journal des Connaissances Médicales Pratiques et de Pharmacologie, April, May, 1838. (In exchange.)

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Jornal da Sociedade das Sciencias Medicus de Lisboa, January to December, 1836. 12 Numbers. (From Dr. Oppenheim.)

The American Journal of Pharmacy, July, 1838. (In exchange.)

The Boston Medical and Surgical Journal, August, September, and October, 1838. (In exchange.)

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Southern Medical and Surgical Journal, July, October, 1838. (In exchange.)

The American Medical Library and Intelligencer, from April 9th to October 15, 1838. (In exchange.)

The Louisville Journal of Medicine and Surgery, April, 1838. (In exchange.)

Authors of new medical books, desirous of having them reviewed or noticed in this Journal at the earliest opportunity, are invited to transmit to the *Editor* a copy as soon after publication as convenient, when they will receive prompt attention. Under ordinary circumstances, very considerable delay is caused by the circuitous routes through which they are received.

Papers intended for publication should be sent, *free of expense*, as early after the appearance of the Journal as possible, in order to be in time for the ensuing number. Such communications should be addressed to "LEA & BLANCHARD, Philadelphia, for Isaac Hays, M.D., *Editor of the American Journal of the Medical Sciences.*" All letters on the *business* of the Journal to be addressed exclusively to the publishers.

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XV. Nature and Treatment of Diseases of the Ear. By Dr. William Kramer. Second edition of the author's treatise on chronic deafness, much improved and enlarged. Translated from the German, with the latest improvements of the author since the last German edition. By James Risdon Bennett, M.D., &c., &c. London, Longman & Co., 1837: pp. 307, with two plates. Philadelphia. Thomas, Cowperthwait & Co., 1838: pp. 250. - - - - - - - - - 135

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THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES.

ARTICLE I. *Case of Anomalous Aneurism of the Aorta resulting from effusion of blood between the laminæ composing the middle coat of that vessel.* By C. W. PENNOCK, M. D., Physician to Philadelphia Hospital, Blockley. [With two coloured plates.*]

THE patient who was the subject of the following observations was a black woman, ætat. 75, who entered the Philadelphia Hospital December 20th, 1835. Her health had been uniformly good until eight years previously, when she experienced slight difficulty of breathing, with some beating of the heart which was augmented by ascending heights. During the summer of 1827, whilst using great muscular exertion, (pumping water,) she was seized with sudden and severe pain at the sternum, attended with violent action of the heart, and a sense of suffocation. The pain increased in violence, and after remaining fixed in front of the chest for two weeks became lancinating, extending from the sternum to the back, and was attended by a short cough, but, (the patient says,) without marked fever. The pain continued nearly three months; upon its cessation the increased dyspnœa prevented laborious exertion. The cough and difficulty of breathing remained, varying in intensity at different seasons, being less distressing during the summer, whilst they were aggravated in the winter. The dyspnœa and palpitation were greatly increased after an attack of cholera, in 1833. During the last four years, besides the thoracic affection she has experi-

* It was intended to publish this case in the spring of 1836, but the appointment of Mr. Drayton as one of the scientific corps of the Exploring Expedition has delayed the engraving of the plates.

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enced severe uterine pains with bearing down sensations in the pelvic region and occasional suppression of urine. Two years since, discharges of blood from the vagina took place, which have generally recurred at regular intervals of three weeks. The inferior extremities have often swollen from cellular infiltration.

When received into the hospital, she presented the following symptoms: countenance anxious; no pain in the head; intelligence perfect; great debility; position in bed elevated; œdema of the legs and ankles; pulse 90 per minute, full, tense, intermittent; slight muscular movements cause palpitations of the heart; oppression but no pain in the præcordial region. *Chest* is well formed; anteriorly, with the exception of the region of the heart, it is very resonant upon percussion; posteriorly, percussion yields a normal sound. Respiration in front, very feeble; absent over the inferior third of the sternum; posteriorly, normal. Over the region of the heart percussion is dull in a space, the outline of which corresponds to the form of the pericardium, which extends downwards from the cartilage of the third rib the length of sternum, and laterally, on a line drawn through the nipple, from one inch to the right of the middle line of sternum to the margin of left axilla. Impulse of the heart forcible; rythm nearly natural; first sound roughened, having a rasping sound strongly marked opposite the cartilages of the third rib and along the upper third of the sternum; second sound dull, somewhat prolonged.

Abdomen soft, no pain on pressure. Appetite good, food generally rejected some hours after eating; lancinating pain in the pubic region extending to the lumbar vertebra; dyspnœa and oppression greatest at night, when she is obliged to sit upright in bed gasping for breath. (Treatment, venesection, cups over the præcordial region, Pil. pulv. camph. grs. iij, Sulph. Morph. grs. $\frac{1}{8}$ q. b. h., Tr. digitalis gtts. x. t. d., milk diet.) Small portions of blue mass and squills were subsequently given. The patient in two weeks was apparently better—position in bed was more horizontal, the œdema diminished, sleep less disturbed and the nightly asthmatic paroxysms less intense. This melioration was but momentary; in a few days the symptoms recurred with increased violence. The inferior extremities became greatly swollen; orthopnœa was extreme and the patient was obliged to be constantly in a sitting posture. The impulse of the heart was now more strongly felt, the head of the auscultator being forcibly raised when the ear was applied to the chest; the first sound of the heart predominated over the second, but the latter was distinctly audible on the right margin of the sternum. Between the cartilages of the third and fourth ribs the rasping sound was plainly heard, and could be distinguished along the left margin of the sternum synchronous with the first sound of the heart. The distressing thoracic symptoms were attended with agonising pain in the womb, and with discharge of clots of black blood from the vagina. Transient relief was afforded by venesection, topical depletion by cups and leeches, and the

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exhibition of camphor and the narcotics. Orthopnœa, however, with the utmost distress from a sense of suffocation became constant after the middle of January, and death took place on the 26th of that month.

Autopsy 36 hours after death. Large frame; moderate emaciation; infiltration of cellular tissue of lower extremities.

Thorax. No adhesion of the lungs to the pleura costalis. Lungs throughout crepitant; vesicles of the upper lobes much dilated, from the size of a pea to that of a hazel nut. The parenchymatous structure throughout of a dark gray almost black colour, resembling melanosis. The bronchia contain viscid dark coloured mucous without odour.

Heart much enlarged, more than double its natural size; right cavities more dilated than those of the left; coagula in both ventricles, especially the right. The parietes of the left ventricle measure seven-eighths of an inch in thickness, those of the right ventricle natural. The semilunar valves of the aorta partially ossified; the mitral valves opaque, thickened, with cartilaginous depositions on the free edges; semilunar valves of the pulmonary arteries and tricuspid valves, natural. *The aorta* is apparently much dilated, and, when cut into, presents the remarkable appearance of being a double vessel. The internal vessel (*f.* Pl. I. Fig. 1) is the aorta proper communicating directly with the heart, and is nearly surrounded by another vessel (*e.* Pl. I. Fig. 1) of much larger diameter, which, commencing opposite the great sinus of Valsalva, accompanies the aorta until it divides into the primitive iliacs and terminates in a *cul de sac.* The aorta communicates with the external vessel by a valvular fissure half an inch in length, with rounded edges, which penetrates through the serous and *partly* through the middle coats, and which is situated half an inch above the semilunar valves. The external vessel has no communication with the heart except by this opening. The innominata, subclavian, and left carotid arteries have each double orifices communicating with the aorta and external vessel. The innominata near its mouth is divided by a septum into two portions; the septum terminates in a semilunar edge half an inch above the aorta. In the left carotid the appearance of double vessels is presented for the space of two inches; each has separate openings, one communicating with the aorta, the other with the external vessel. In the left subclavian, on the contrary, there is no double vessel; the orifices opening into the aorta and external vessel being merely formed by a valvular septum at the mouth of the artery.* The intercostals of the right side of the thorax communicate with the aorta, whilst those on the left open into the external vessel.† The cœliac, superior and inferior mesenterics, renal, and other arteries given off in the abdomen above

* The ductus arteriosus had evidently opened directly into the aorta.

† This specimen of morbid anatomy was presented to the College of Physicians, at their meeting of February 1836, and is now deposited in the Wistar Museum of the University of Pennsylvania.

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the bifurcation into the primitive iliacs, communicate with the aorta. The aorta is perforated by numerous foramina, by which, communication is established between it and the external vessel. Anteriorly the external vessel is composed of three coats; an outer, (3. 3. 3 .3. Pl. II. Fig. 2.) which is cellular; a middle, (2. 2. 2.) formed of muscular circular fibres, and an internal, (1. 1. 1. 1.) which resembles the serous tissues, but is of variable thickness and presents various colours in different parts of its extent. The cellular coat and the lamina of muscular fibres are continued around the posterior semi-circumference of the aorta, where the muscular circular fibres uniting with the yellow elastic tissue (4. 4. 4.) of that artery form in that portion of it its middle coat. The internal membrane of the external vessel, on the contrary, is reflected upon the anterior semi-circumference of the aorta, and the two vessels are there firmly connected by tendinous bands (*s. s. s. s.*) resembling chordæ tendineæ, which pass from one vessel to the other. These bands being cut, the lining membrane may be readily dissected up; it is of a dull white color, semi-transparent, and evidently takes its red and yellow appearance from the subjacent red fibres of the external coat and from the elastic tissue of the aorta. The structure of the aorta in its posterior semi-circumference is normal; in its anterior circumference, the yellow elastic tissue is devoid of the external muscular fibres; the cellular coat is also wanting and is replaced by the reflected membrane (1. 1. 1. 1.) of the outer vessel. Numerous ossific deposits exist in the aorta between its serous and elastic coats, but none in the external vessel. Immediately above the bifurcation into the primitive iliacs the external vessel ceases—the red muscular circular fibres and yellow elastic coat become firmly united in the entire circumference of the aorta, and the structure of the iliacs and that of the other arteries throughout the body present the usual arterial formation.

Abdomen. Stomach contracted, structure normal except near the pyloric orifice where its coats were thickened with carcinomatous alteration of the muscular and cellular tissue. Small intestines natural. Several of the mesenteric glands presented a scirrhous appearance. In the left kidney were masses of half an inch in diameter, of a dull white colour, hard texture, but without distinct striæ.

Uterus enlarged, double its natural size, structure hardened, presenting in some portions when cut a white surface without any evident striæ, (*tissue lardacé,*) whilst other portions were evidently marked with striæ of a dull yellow colour; in the neck near the os tincæ was a softened portion of cream colour (*encephaloid*).

Remarks. The inquiry at once presents itself what is the character of the anomalous formation of the aorta? Was it congenital, or is the external vessel factitious? This problem was highly interesting in its character, and for its elucidation the specimen was submitted to the examination of several of the most distinguished anatomists of this city. From the eminent Pro-

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fessor of anatomy of the University of Pennsylvania the writer received the following communication.

January 29th, 1836.

Dear Sir:—I have made a further examination of the aorta of your patient, and am more disposed to the opinion already expressed by me, that its original conformation was normal but at a subsequent period, a laceration of the internal and middle coats occurred in the great sinus of Valsalva; and that a column of blood was introduced under the cellular coat so as to detach its semi-circumference from the middle coat down to the primitive iliacs, and also produce a similar condition in the roots of the large branches from the summit of the arch of the aorta.

The arterial structure which has been so well developed in the factitious routes, the fibrous cords like cordæ tendineæ at the margins, and the well defined orifices of the intercostal arteries all prove the antiquity of these routes.

The precise time of life at which so remarkable a change happened can of course only be conjectured; if after birth, it must have been brought about very slowly so as to accommodate the system to it.

I am very sincerely &c., your friend,

W. E. HORNER.

Subsequent to the receipt of the above note, further dissection showed the identity of structure of the middle coat of the external or aneurismal vessel with that of the aorta, and the intimate union of the two in the posterior semi-circumference of the artery. This induced the idea that the blood which had been propelled through the laceration near the sinus of Valsalva had not penetrated the entire thickness of the middle coat of the aorta, but had separated its external from the internal lamina. In order to ascertain whether a separation of this kind could be effected by a fluid thrown between the laminæ of the middle coat, experiments for that purpose were instituted. A small tube with a capillary extremity was introduced between the laminæ of this coat of the artery, and water was forced through it from a syringe in a direction parallel to the sides of the vessel. The result was, that the middle coat was separated in three distinct laminæ.* These views and facts were submitted to the examination of Professor Horner, who fully agreed with me in the idea, that the factitious vessel was the result of the separation of the external from the internal lamina of the middle coat, and that its internal membrane was formed by coagulable lymph, which had simulated the appearance of a serous tissue.

This case may, therefore, be regarded as analogous to those cases of dis-

* A specimen in my possession prepared in the manner above mentioned by my friend Dr. Bush of Wilmington, Del., whilst resident physician of the Hospital, shows the separation very satisfactorily.

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secting aneurisms reported by Morgagni,* Nicholls, Laennec,† Guthrie,‡ M'Lacklin,§ Shekelton,‖ but differing from them in this, that the aneurism in this instance was formed *between* the laminæ of the middle coat, and that the blood in circulating through the factitious vessel supplied the intercostal arteries of the left side. My search for a parallel case has been unsuccessful, and I am compelled to consider that if this form of aneurism be not *unique*, it must be of extremely rare occurrence. The remarkable lesion of the innominata and left carotid arteries, where the blood after separating the tunics of these vessels as in the aorta, and forming two channels for its passage returns through another rent into the canals of the arteries, is similar to the two cases reported by Mr. Shekelton.

As regards the time when this dissecting aneurism commenced, I am induced by the history of the case, to suppose, that the laceration near the sinus of Valsalva took place eight years before death, whilst the individual was using violent muscular exertions in pumping.

References to Plates.

Pl. I. Fig 1. *a.* Left ventricle of the heart, opened from the apex to the base.

b. Cardiac extremity of the aorta laid open, showing the semilunar and mitral valves, and the orifices of the coronary arteries.

c. Pulmonary artery.

d. Left auricle.

e. External vessel laid open in its entire extent, bringing into view the aorta *f*.

g. Valvular opening through the coats of the aorta; the wire *h* is passed through the valve, showing the communication of the aorta with the external vessel *e*.

i, *k*, *l*. Arteries giving off from the arch of the aorta; they open into the external vessel at *m*, *n*, *o*, and also communicate with the aorta as indicated by the dotted lines.

p. Intercostal arteries of the right side of the thorax, *communicating with the aorta.*

q. Intercostals of the left side opening into the external vessel *e*.

r. Foramina between the aorta and external vessel.

s, *s*, *s*. Tendinous bands passing from the internal coat of the external vessel, connecting it with the aorta.

t. Termination of the external vessel near the bifurcation of the iliac arteries.

u. Arteries of the abdomen communicating with the aorta.

v. Internal iliacs laid open.

* Epist. LVIII. No. 13.

† Tome III. p. 205, Edition 1831.

‡ Guthrie on the Diseases of the Arteries, p. 43.

§ Glasgow Medical Journal, Feb. 1828, p. 81.

‖ Dublin Hospital Reports, Vol. III. p.

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Plate 1.

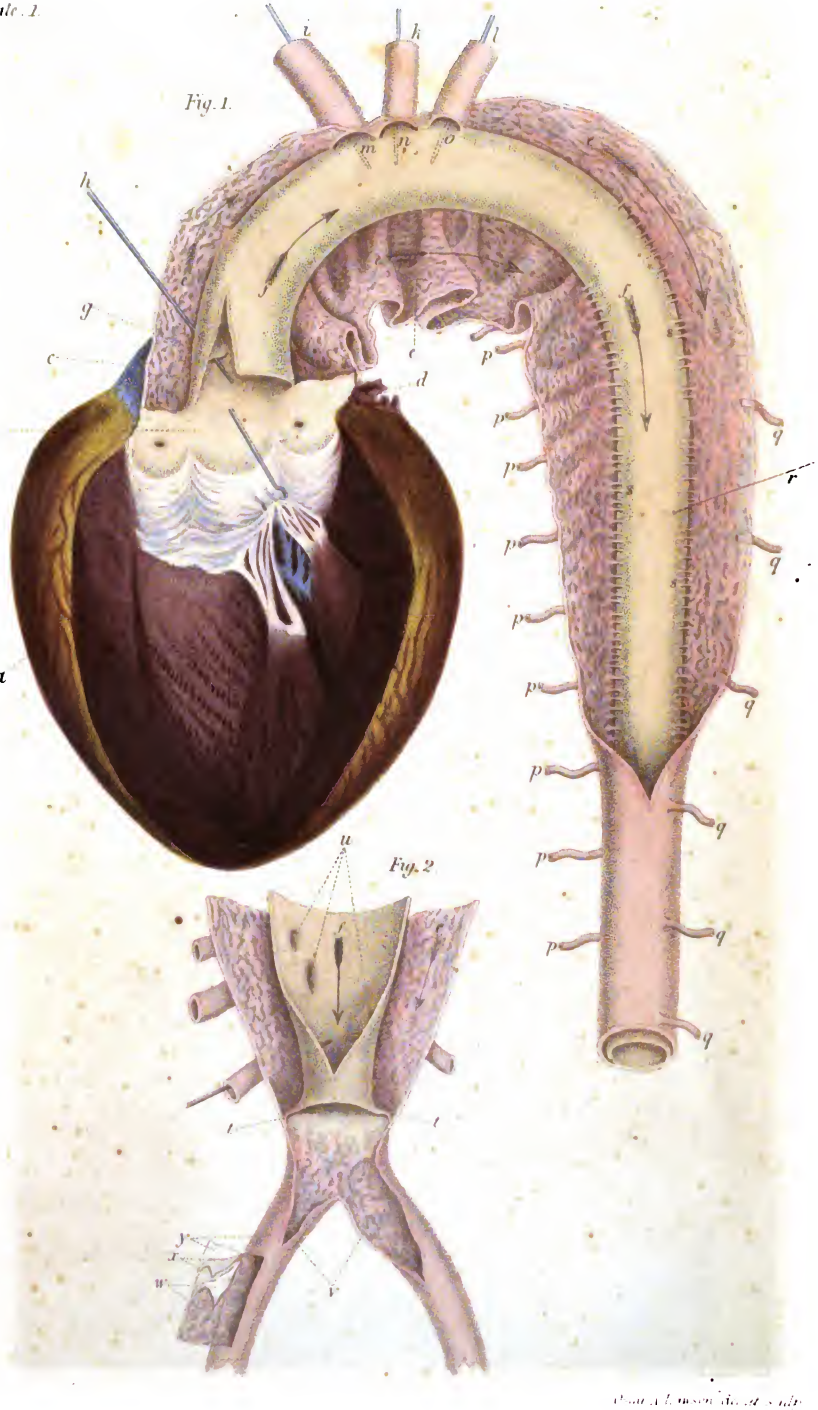

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Plate 2

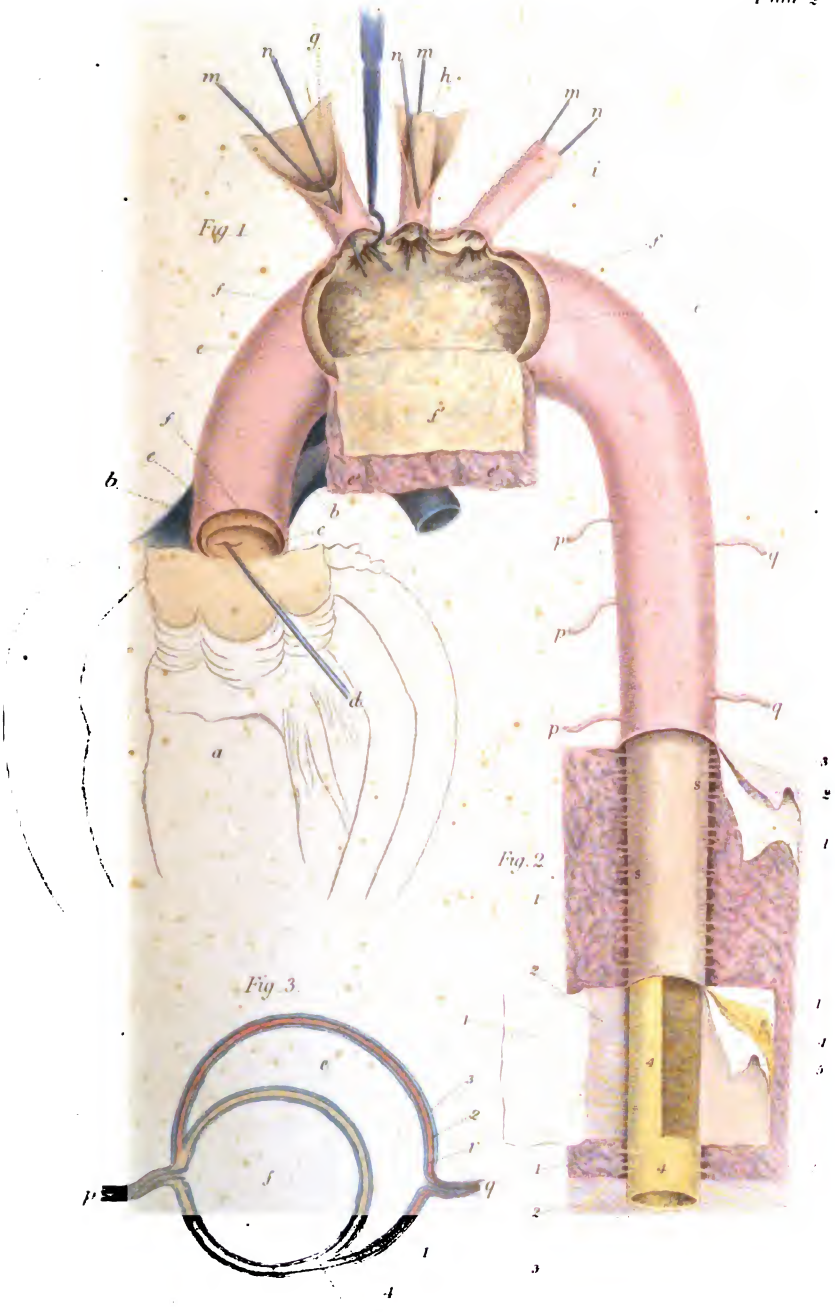

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Fig. 2. *f.* Aorta.
p. External vessel laid open and terminating at *t.*
u. Orifices of the arteries, of the abdomen opening into the aorta.
w. Serous coat of the internal iliac.
x. Muscular coat of internal iliac.
y. Cellular coat of internal iliac.

Pl. II. Fig. 1. *a.* The Heart.
b, b. Pulmonary artery.
c. Horizontal section of the aorta, showing the valvular opening, (into which the wire *d* is introduced,) by which a communication is established between the aorta *f, f, f,* and the external vessel *e, e, e.*
e', e', f'. Sections of the coats of the external vessel and aorta; *e', e',* internal coat of the external vessel laid back; *f'* internal coat of the aorta, in which is much ossific deposit.
g. The innominata; *h,* Left carotid; *i,* Left subclavian. The innominata and carotid near their orifices are also *apparently* double. In the innominata the appearance of the concentric vessel extends half an inch; in the left carotid, two inches, whilst in the left subclavian there is only a vavular septum at its mouth between the aorta *f,* and the external vessel *e.*
n, n, n. Wires which pass into the external vessels *e, e, e;* whilst those marked *m, m, m,* pass through the orifices opening into the aorta *f, f, f.*
p. Intercostals of the right side.
q. Intercostals of the left side.

Fig. 2. Dissection of the coats composing the vessels *e* and *f.*
1, 1, 1, 1, 1, 1, 1. Internal coat of the external vessel *e. e.*
2, 2, 2, 2. Middle coat of the same vessel consisting of muscular fibres.
3, 3. Cellular coat surrounding the external vessel, and common to both on the posterior semicircumference of the aorta.
4, 4. Proper fibrous coat of the aorta *f.*
5, 5. Serous coat of the aorta.

Fig. 3. Horizontal section of the vessels.
e. External vessel.
f. Aorta.
1. Internal membrane of external vessel.
2. Middle coat of the same, composed of muscular fibres, uniting and blending with middle coat of aorta (5) in its posterior semicircumference at 6, 6.
3. Cellular coat investing the outer circumference of *e,* and the posterior portion of *f.*
4. Middle coat or yellow fibrous tissue of aorta.
p. Intercostal artery of right side communicating with aorta.
q. Intercostal of left side, originating from the external vessel.

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ART. II. *Account of a case of Dissecting Aneurism seen at an early stage.* By PAUL B. GODDARD, M. D., Demonstrator of Anatomy, University of Pennsylvania.

In January, 1836, I was requested by Dr. William Harris to make an examination of the body of a woman who had died under the following circumstances: This woman, who was cook in a respectable family in this city, was taken suddenly ill about five o'clock in the afternoon, whilst making some exertion, and complained of faintness and oppression in the region of the heart. Dr. Harris was immediately sent for, and caused her to be bled, which relieved her considerably. He saw her again in the evening and found her weak, but observed no symptoms indicative of immediate danger. He was called up to her, however, in the night, and found her moribund; death took place soon after midnight.

On examination, the pericardium was found distended with dark blood, firmly coagulated, estimated to amount to at least eight ounces.

The heart was large and fat, but its structure was normal in every part; the lining membrane of the aorta presented a yellowish appearance, studded here and there with minute ossific patches; about three-fourths of an inch from the semilunar valves a rupture was found nearly an inch in length in a transverse direction, which extended through half the thickness of the middle coat. A channel led both upwards and downwards from this point, which was produced by the separation of the laminæ of the middle coat, extending in width to one-half the circumference of the artery. The upper channel followed the arch of the aorta, and descended as far as the origin of the eighth intercostal artery, leaving the aorta at the summit of the arch to run some inches between the coats of the innominata, left primitive carotid and subclavian. It also ran along some of the intercostals. Many obstacles were thrown in the way of a more perfect dissection by the family, and the distance to which it extended in the vessels of the neck was not precisely ascertained.

The whole of this channel was occupied by a coagulum of dark blood. The lower channel, which appeared to be subsequently formed, and in all probability caused the death of the patient, extended from the rupture in the internal coat to the point of junction of the fibrous pericardium with the root of the aorta; it passed between the two, and then, by a rupture of the serous pericardium, escaped into its cavity.

The woman was very fat, and appeared to be well formed, muscular, and in good health at the time of the accident. Every other organ of the thorax and abdomen was normal. The brain was not examined.

The preparation, which was obtained with difficulty, stands at the side of Dr. Pennock's in the anatomical museum of the University.

I believe that if the rupture had not extended into the pericardium, the

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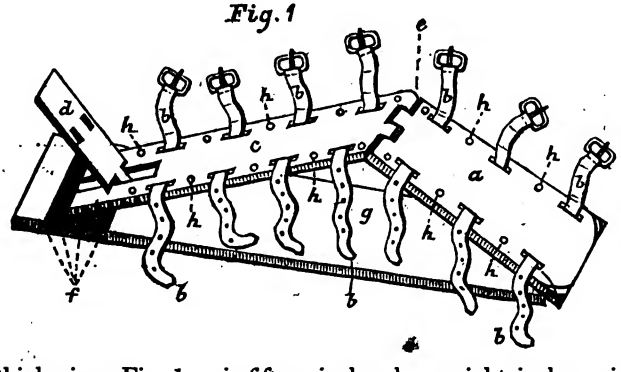
woman would have lived, and an adventitious serous lining being formed for the new channel, it would have presented in after years, the same appearance as Dr. Pennock's preparation. There is one point very remarkable. In Dr. Pennock's case, there are seen in the angle between the new and the old channel, on either side, a number of filaments covered with the new serous lining and extending from the old vessel to the new; in my preparation, the same filaments exist, formed of shreds of the middle coat, but smaller than in Dr. Pennock's, in consequence of the want of the adventitious covering.

The occurrence of the two cases within a short time of each other, would go to show that the accident, when well understood, will be found to be more frequent than has been supposed.

ART. III. *Description of a Modification of the Double Inclined Plane, with an exposition of its advantages over other apparatus for fractures of the lower extremity.* By JOSIAH C. NOTT, M. D., of Mobile.

THIS apparatus consists of four pieces, a thigh piece, a leg piece, a moveable foot board, and a horizontal board resting flat on the bed.

Fig. 1



The thigh piece, Fig. 1, *a*, is fifteen inches long, eight inches wide at the upper, and seven inches at the lower end, one inch and a quarter thick; the upper surface is hollowed out a little and brought to a thin edge above, to fit well under the nates; the corners are rounded off, *otherwise they would be in the way in passing fæces.* Three narrow slits are cut through on each side, two inches from the edges, for the leather straps to pass through, one as near the knee as possible, one near the groin, and the third intermediate.

Leather straps with buckles, Fig. 1, *b*, *b*, long enough (two and a half feet,) to pass round the limb after the pads and splints are applied, and buckle firmly across.

The leg piece, Fig. 1, *c*, is two feet long, seven inches wide at upper, and

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six at the lower end; it has a slit at the lower end, seven inches long, and one and a half wide for the purpose of receiving the tongue of the foot board and allowing it to move up or down, to suit limbs of different lengths. There are four narrow slits for the passage of straps as in the thigh piece, one as near the knee as possible, one near the ankle, and the other two at intermediate points. A row of small holes are bored horizontally through from one edge to the other, passing through the long slit and tongue of the foot board, for the reception of a strong wire which fixes the foot board to the leg piece, at any point which may be desired.

The foot board, Fig. 1, *d*, is twelve inches long, and four wide, with a tongue one and a half inch wide, so as to fit closely in the long slit, where it is firmly held by the wire. In order to hold it more steady, it has a small block nailed on the lower back part on a level with the commencement of the tongue; this block prevents the foot from pushing it forwards.

The horizontal board which rests on the bed, Fig 1. *g*. is notched at its lower extremity, Fig. 1. *f*.; in these notches the leg piece is supported and by means of them the angle may be varied when necessary—it is three feet long and eight inches wide at each end—it is fastened to the thigh piece two inches from the upper extremity of the latter by two hinges—the thigh piece fits better under the nates for projecting over in this way—these hinges may be of iron or leather.

The joint between the thigh and leg piece, Fig. 1. *e* is formed like a carpenter's rule—the two pieces being fastened together by a piece of strong wire—iron or leather hinges would answer here also—the angle formed here *should be rounded off* to prevent injury of the ham.

In the thigh and leg piece, half an inch from the edges on each side there is a row of holes, Fig. 1. *h*, half an inch in diameter, to receive wooden pegs six inches long which stand perpendicularly on each side of the limb, see Fig. 2. *k*.—these may be inserted at any points the surgeon thinks advisable, to give additional firmness to the fixtures—thus giving all the advantages of a fracture box without its inconveniences.

Extension, in fractures of the thigh, is effected, in this apparatus, principally by the *weight of the leg* resting on the calf and whole under surface down to the heel, by the straps buckled across to keep it stationary and where necessary by an extending band or gaiter (on which there is very little stress) which fixes the foot to the foot board. The lower fragment is thus held firm while the body is resting comfortably on the bed. It will be seen at once that if the fragments are properly adjusted and the limb placed over the inclined boards (the thigh board being of the proper length) *shortening cannot possibly occur;* the weight of the body makes a passive counter-extension, (without being hung up by the ham,) while extension is effected as before stated.

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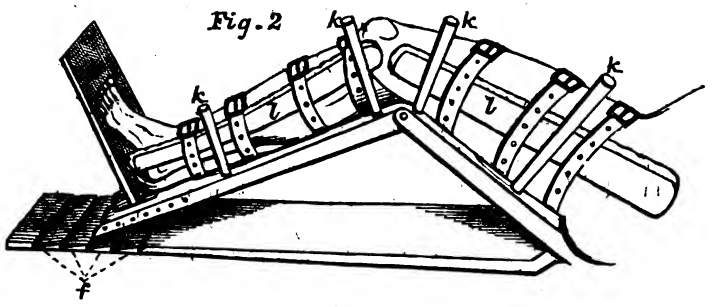

Manner of applying the Double Inclined Plane.—The surgeon may be guided by his own judgment with regard to the propriety of applying a roller or many tailed bandage to the limb; in the great majority of cases it may be dispensed with.

1. *In Fractures below the Knee.*—In the first place a narrow bag of the width and length of the two inclined planes, about half filled with bran, chaff, or what is much better *curled hair*, must be spread over the apparatus for the limb to repose on; it should then be placed under the sound limb so as to get every part of it properly adjusted, foot board, &c.; then raise the fractured limb, adjust the fragments, place the apparatus under it and lay it gently down on the cushion, taking care to arrange the latter so that it will press equally from knee to heel. It is frequently necessary to stuff cotton or tow under the part of the pad between the calf and heel. Next apply two narrow junks or pads prepared in the same way as the one under the limb, on the outside and inside of the leg and long enough to extend from the knee to the sole of the foot; over these two splints, Fig. 2. *l*, of the same length and three inches wide, if necessary, a pad and splint may be placed on the anterior surface of the leg also and the four straps should then be buckled firmly across. Before all this is done, however, the foot should be bound by a bandage to the foot board; if the fracture is oblique it may require a gaiter.

If preferred wet binder's boards may be placed next to the leg and the junks on the outside, One or two straps should also be buckled across the thigh to keep it still. A few pegs, Fig. 2. *k*, should also be inserted along each side to keep the whole more steady.

This dressing answers for *all* the fractures of the leg, oblique or transverse, simple or compound, and displacement is impossible.

2. *In Fractures in the Middle or Lower third of Femur.*—The application is equally simple here and should be commenced in the same way, by spreading over the apparatus a stuffed bag for the limb to repose upon, and adjusting it properly on the sound limb first so as to be sure that every thing will fit snugly. Three junks and the same number of splints long enough to extend from the pelvis to the knee on the outside, inside, and anterior surface; these are properly placed and the thigh straps buckled

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across. The foot must be bound to the foot board and the leg straps buckled across to keep the leg quiet.

A very important point in fractures of the thigh is to have the *thigh piece of the proper length*, and this may be determined by applying it first to the sound limb. If the thigh piece of the apparatus is too long for the patient, place a folded blanket under the pelvis, which will be equivalent to shortening the thigh piece as it brings the pelvis nearer the angle of the inclined planes. If the thigh piece is too short for the patient, place a board under the horizontal board of the apparatus and this will be equivalent to lengthening the thigh piece.

3. *In Fractures of the Femur in or near the Neck.*—In these cases the apparatus of Desault, Boyer, or Hagedorn, and in short all other than the double inclined plane are confessedly inadequate to a cure, without deformity.

There are difficulties to be surmounted even with the double inclined plane, but I do not think them very great, and it must be recollected that we have no choice. The indications in those cases are:

1*st.* To keep the limb of its natural length.

2*d.* To flex the thigh upon the body and the leg upon the thigh so as to relax all the muscles which have a tendency to produce displacement.

3*d.* To raise the body by placing under the back an inclined board or bed chair, in order still further to relax the iliacus internus and psoas muscles.

4*th.* To keep the foot firmly fixed in the upright position.

5*th.* To keep the trochanter a little raised by putting under it a wedge shaped pad, where the fracture is in the neck—thus preventing one end of the bone from falling below the level of the other.

6*th.* To keep the fractured surfaces in close apposition.

7*th.* To prevent the motion of the fragments.

8*th.* To fix the pelvis.

Now I repeat, that these indications, all of which are important, cannot be met, by any other apparatus than the double inclined plane.

The manner of dressing these fractures is precisely the same as that described for fractures in the middle and lower third, except that the splint on the outside of the limb should be long enough to reach beyond the hip joint and in addition to the straps be secured at the upper end by a bandage passed around the pelvis. This assists much in controlling the motions of the pelvis.

In these cases it is all important that the pelvis should be fixed, as motion from side to side would necessarily produce derangement. Where the patient is restless the only effectual plan which has occurred to me is that (which I adopted in Case 1st) of placing a double inclined plane under the *sound*, as well as the broken limb—the two being pressed up, on the same level, under the nates, will of course prevent any twisting motion and keep the pelvis in its proper position. In order to keep the relative positions of the two double inclined planes the same, lay a narrow board across the foot

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of the bed in contact with the bed posts—let the lower ends of the horizontal boards of the two apparatus rest upon the cross board, and fasten them together by boring a hole through each and inserting moveable pegs. The apparatus for the sound limb may be of the simplest kind—no junks, splints, or straps are required—there is nothing wanting but to let the limb rest on the inclined planes—it can be taken away when fæces are evacuated and replaced without the least trouble. See Case I for a practical illustration.

These cases are comparatively rare, fractures of the femur generally occurring near or below the middle.

The advantages of the double inclined plane over other apparatus for fractures of the lower extremity, are the following:—

1*st.* The double inclined plane costs but little, is so simple in its construction that it can be made by any one; is easy of application, and when applied difficult to derange; the angle, too, in most cases can be varied occasionally, which gives great relief to the patient.

2*d.* Extension and counter-extension are steadily preserved, the fragments are better guarded against motion, while, at the same time, the patient can be with much less risk, moved from one part of the bed to another.

3*d.* It is constructed in such a manner, that it can be adjusted so as to fit limbs of different lengths—is *equally applicable to all the fractures of the thigh and leg*, whether simple or compound; and therefore, with a few shingles for splints, and junks, a dressing will always be in readiness for a fracture of the lower limb; one apparatus of this kind will last a surgeon for life.

4*th.* The foot is so well secured that no retraction or lateral motion can occur to derange the fragments.

5*th.* If there should be a wound in the soft parts, swelling or inflammation, the limb may be simply laid over the inclined planes, the foot bound to the foot board and two or three straps buckled across to keep it steady—extension and counter-extension are thus kept up (which is all that is necessary until callus begins to form) and there is no impediment to any local treatment which may be deemed requisite—or even after the limb is fully dressed you may, at any time during the cure, open the dressings to examine the limb without the possibility of harm.

6*th.* The flexed position relaxes the muscles, (thereby counteracting the cause of shortening) is much more comfortable than the straight position, and obviates in a great degree that painful stiffness which often follows the latter.

7*th.* The flexed position is greatly preferable to the extended, where the fracture is near the trochanters, or near the condyles. In the former case, the iliacus internus and psoas muscles, draw up the upper fragment, and in the latter, the gastroc-nemii and popliteus draw the lower fragment down, so that the proper line and apposition of the bones is not preserved, and shortening or angular derangement or both are the consequences. This must be admitted by every one.

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8th. The weight of the leg on one of the inclined planes, keeps up extension on the lower fragment (in fractures of the thigh), the extension being made principally on the calf; while counter-extension is effected by the weight of the pelvis, which holds the upper fragment in its place—there are no bands to produce excoriation—an extending band in some cases of oblique fracture may be necessary to keep the foot in its place, but the stress upon this is trifling—generally speaking, the foot only requires to be lightly bound to the foot board to keep it upright—the heel, instep and perineum, are thus saved from excoriation.

9th. The facility of passing fæces, too, is another great advantage—the patient has only to raise the sound limb, and a bed pan can be slipped under him without inconvenience.

10th. When the fracture is in the upper part of the femur, the patient must be kept always in a half sitting posture, but when in the middle or lower third, he can assume at pleasure any posture from the recumbent to the sitting, and may thus amuse himself with reading, writing, chess, cards, &c.

11th. The apparatus of Desault, Boyer, and Hagedorn, do not permit of access to injuries of the soft parts, when situated under the lateral splints.

The four following cases illustrate the efficacy of the double inclined plane I employ. I have selected these, because they occurred not in my own practice, but in that of other surgeons.

Case I. *Fracture of the Thigh.*—The subject of this case, G. R., about nineteen years of age, from Charleston, while a student in the South Carolina College, became involved in a difficulty which resulted in a duel on the 29th May, 1833. I was at this time living in Columbia and the case came under my charge. His antagonist was shot through the abdomen and survived but twenty eight hours, and R. was shot with a large ball through the thigh fracturing the femur—the ball entered the right thigh on the outside, four inches below the trochanter and passing through the bone came out at the opposite point two inches below the groin so exactly over the track of the femoral artery that it must have been struck, though not with sufficient force to cut it, the bone having protected it.—The ball passed through a large plexus of blood vessels and nerves, and the hemorrhage was considerable though not alarming—the thigh swelled immediately to double size from extravasation of blood. I had him carried to town that night fifteen miles.

This case according to all authority was one which *demanded immediate amputation* and was exceedingly interesting in many particulars, but I shall omit every thing but what relates to the subject before me.

I did not attempt to set the limb before the 11th of June (13th day) because I was afraid of sloughing in the track of the ball and that the motion required in setting it might produce a rupture of the artery and fatal hemorrhage. There being wounds on the outside and inside of the thigh which

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required constant attention, the ordinary apparatus were inapplicable and this fact as well as the situation of the fracture (being very high up) determined me to select the double inclined plane which I had never seen applied. The limb was accordingly dressed in the manner already described, on the 11th of June, thirteen days after the accident. From my note book I take the following extract which I think important.

"June 16*th*. Patient has a great deal of pain in the wound, is very restless and cannot be confined in any position which will prevent him from twisting the pelvis to the opposite side and thus distorting the limb. The bones form a salient angle externally and the lower fragment rides the upper —the limb is shortened and the patient so restless that I fear an artificial joint. I have therefore ordered another double inclined plane for the *sound limb*, with the view of confining it and keeping the pelvis square, in hopes by this means of preventing the motion which produces the derangement of the fragments."

"23*d*. On the 18th the other double inclined plane was placed under the sound limb exactly on a line with the other, and the two acting like wedges under the nates, of course kept the two sides of the pelvis on the same level—they were fixed by pegs (as before stated) to a transverse board to guard them against motion. No bandages, splints or any dressing was applied to the sound limb except a pad for it to repose on. The foot of the broken limb was well secured to the foot board, a compress laid over the projecting extremity of the lower fragment and a strap buckled over it so as to draw this fragment inwards and counteract the angular derangement—(the other dressings as already described.) This arrangement succeeded even beyond my expectations—the limb is now straight and of its natural length."

In the early part of July the patient had a severe attack of intermittent fever for about a week, for which he took quinine and the usual remedies. On the 31st he was up walking about on crutches, and on the 18th of August he left town in a stage coach, perfectly well and without deformity.

During its progress this case was seen repeatedly by Dr. Wells and Dr. Gibbes who will vouch for the principal facts stated.

This young gentleman was one of high respectability, but misfortune seemed to have marked him for her own. He afterwards had the same thigh again fractured by a fall, three or four inches below the original fracture, and after recovering from this went on to Philadelphia (as a medical student) where he died with an attack of fever.

Case II. *Fracture of the Thigh.* In the month of October last (1837) a young negro man belonging to Mr. Alexander Pope of Mobile fell through a trap door in the second floor of a warehouse drawing along with him a large box of goods, which fell upon his thigh and fractured it in *two places*, about four inches above the knee and also about four inches below the groin —the middle fragment too felt as if it was crushed into several pieces.

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Dr. R. Lee Fearn and myself attended the patient together. We placed the limb over the doubled inclined plane (as described)—bound the foot to the foot board, and without any bandaging, placed pads, and on the top of these splints, on the outside, inside and anterior surface of the thigh—the thigh straps were then buckled firmly across, and also the straps across the leg. He was the most unmanageable patient I ever saw and appeared to be perfectly regardless of consequences. He would unbuckle the straps and take off all the dressings—but the limb still remained on the inclined planes and the foot, bound to the foot board in the upright position—he was unable to move the limb and *extension and counter-extension were thus maintained in spite* of him. At the end of five or six days, finding him so unmanageable, Dr. Fearn thought he could be confined better by Desault's apparatus; and accordingly the limb was taken off of the inclined planes and Dr. Physick's modification of Desault applied. The next day we found every bandage untied and the limb shortened—it was again applied and again every thing was torn loose. We once more applied the double inclined plane which kept up extension and counter-extension, although he would unbuckle the transverse straps when he pleased. Under these circumstances unfavorable as they were the case did well—the bones united and on the forty-second day the man was up walking on crutches—about the termination of the third month he walked to our office without crutches, and when stripped and standing before us, the eye could not distinguish the fractured limb from the other—there was no shortening and no deformity.

But one double inclined plane was used in this case: the second is *very rarely* required.

Case III. *Fracture of the Leg.* Mr. I. C. D., a connection of mine, was thrown from his horse during the last summer and fractured both bones of the leg about two inches above the ankle—the malleolus internus was fractured also. I applied the straight splints and other dressings ordinarily employed, which were continued for a week. He complained so much of pain in the knee and the point of fracture that I determined to put the limb on the double inclined plane, thinking that the more perfect support to the limb, and the relaxation of the muscles might afford him relief. I first laid down on the leg piece (the apparatus being first protected by a hair pad) the bandage of Scultetus and then placed the limb upon it. I next applied wet binder's boards on the outer and inner part of the leg from the knee to the sole of the foot—the strips were then drawn across—junks on each side and the leather straps buckled firmly over the whole—the foot also was secured in an upright position by being bound to the foot board. The relief from pain was immediate and I heard no complaint afterwards—the cure marched steadily and rapidly on.

In this case, junks next the skin and wooden splints or binder's boards on

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the outside would have answered all the purposes of binder's boards and bandage of Scultetus.

Case IV. *Fracture of the Leg.* This was a patient in the Mobile Hospital under the charge of Dr. Redwood, through whose politeness I was allowed to apply the double inclined plane. All the circumstances connected with this case (with the exception of the fracture being a few inches higher up) resemble so closely case third, that I deem it unnecessary to give a detailed account of it. He was rendered much more comfortable by the double inclined plane and was speedily cured.

Mobile, June, 1838.

Art. IV. *On the Diagnosis of Delirium Tremens.* By Samuel Jackson, M. D. of Philadelphia, late of Northumberland.

The principal object of the present paper is, to enforce the necessity of distinguishing Delirium Tremens, from mere temulent excitement and the mania thereby often produced. On this subject the present writer can speak with much experience, having been situated for twenty-five years among a great number of *deliri trementes* who afforded him, as their only physician, an abundant practice. Distilleries were numerous for many years, and all classes drank largely of spirits, no one being considered as hospitable, who did not set forth his strong drink to all persons, even to the young.

By the terms mania a potu and delirium tremens, we have always understood that irregular sleepless excitement, which often obtains on the sudden abstraction or diminution of accustomed alcoholic or opiate draughts; and this has been the understanding of every physician with whom we have conversed, from the beginning of our studies twenty-nine years since. If this definition be correct, the disease can in no case be the "immediate consequence of the *use* of liquor" as an eminent writer expresses it, No. XVII. p. 167 of this Journal, but it must be in all cases the immediate consequence of the *want* of liquor.

The *direct* effect of the poison, then, is one disease, and the *indirect* effect or delirium tremens is another; yet some physicians who entertain correct opinions as to the cure of these *two diseases*, still treat of them under the same name, consider them as one, and then vituperate their brethren for attempting to cure them both, as *they suppose*, by the same methods. There is herein such a display of twofold error, as ought to be carefully and quickly corrected. They are not the same disease, nor do the somnifero-stimulant physicians treat them by the same or even by similar methods. When this

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point shall be clearly settled in the minds of all, and surely it is high time to settle it, we shall all come to an adequate understanding of the various conflicting opinions which have been advanced. We shall see clearly, how one physician cures his *supposed* cases by simple incarceration without medicine—how another sometimes cures by emetics—a third by bleeding and other antiphlogistics—a fourth by Epsom salts followed by wormwood tea—a fifth by the cold bath and calomel—a sixth, seventh, and eighth, by other and various means; but one thing of more importance than all this we shall see, that these methods are successful only in mild cases which cure themselves, or in that temulent excitement which is "the immediate consequence of the excessive use of liquor," and that there is but one uniformly successful method of treating genuine delirium tremens *in its deadly grades*, which is the forcing of sleep by opium or spirits. We shall see that when the disease is fully begun in a patient favorable to the full development of *a bad case*, that he must be overwhelmed by one or the other of these remedies, or suffered to die.

We have hinted above, that it is high time to ascertain what is delirium tremens, for in relation to this subject we do believe there is no little misunderstanding. Even in Mason Good's great work, the last edition, not great by its usefulness, but by its intended comprehensiveness, the disease is treated of under the head of *vapours*, as a variety *of hypochondriasis*, its most prominent pathognomonic, wakefulness, not even named; and a late writer of great eminence represents it as an accidental concomitant of local diseases, which being removed, the delirium will subside. "Restoration to health," he says, "took place speedily and completely after sleep had taken place."—See the last Number of this Journal, p. 520.—Dr. Gregory too, in his systematic treatise on the Practice of Medicine, places this disease between phrenitis and hydrocephalus and even supposes, that it is sometimes produced by the poison of lead and by emotions of the mind.

We further infer, that there has been much misunderstanding of the subject, from the cures that have been so often performed by the most insignificant means, and often by those means which very many physicians consider as hurtful. Dr. Ware (see last Number of this Journal, p. 520) speaks of curing two patients by blood-letting only; and Dr. Potter, in his notes to Armstrong, carries bleeding to the amount of one hundred ounces in three or four days, as a necessary and salutary remedy; he has even drawn forty ounces at once without regretting what he calls a "sanguinary measure."

Upon a par with this, is Dr. Armstrong's "sanguinary measure" in typhus fever, when he speaks of drawing blood to the amount of sixty ounces in two days from his pupil Mr. Cavel, and fifty ounces from himself in the same space of time. We venture to assert, that when patients are saved by such effusions of blood, there is neither typhus, nor delirium tremens, present.

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Authors, moreover, speak of cases wherein there is pain in the head, furious blood-shot eyes, contracted pupils, stupor, convulsions, much fever, angry passions,* with various symptoms of phrenitis; all these are at variance with the symptoms of delirium tremens, as recorded by the somnifero-stimulant practitioners. In drunkenness, and in the maniacal inflammatory excitement which sometimes follows it, we see these symptoms, particularly the most terrific convulsions, alternated by an almost unconquerable stupor.

Authors, too, use language that is applicable only to the inflammatory state, caused by the direct operation of spirits; but the prevailing error, we conceive, is the confounding this disease in name, and consequently in treatment, with that mania which is often the immediate consequence of ardent spirits. Thus Dr. Stokes (see Vol. XIII. p. 536 of this Journal) asserts, "that it is generally treated in a very empirical way," because, as may be learned from his paper, there are plainly two species of the disease—*one* produced by the sudden abstraction of stimulus, and *another* by plain direct intoxication. "I divide," he says, "all forms of the disease into two classes, *one*, in which the delirium is the result of an immense debauch, *another*, in which the patient has been in the habit of using ardent spirits in quantities, and has suddenly given up their use. In the former, the disease appears to be the result of excess, in the latter, of the want of the customary stimulus." He thus considers these two diseases as one.†

Upon the same principles, an eminent physician of our own country has published a dissertation, reviewed in Vol. IX. p. 164, of this Journal, wherein says the reviewer, "he combats the opinion that delirium tremens is in most cases immediately occasioned by ardent spirits; and states that in a large proportion of cases, this had nothing to do with it. This agrees with our own experience, as we have seen numerous cases in which the disease appeared in the midst of the most excessive indulgence, as well as under the other circumstances to which he alludes." And in the last Number p. 519, after a lapse of seven years, there are some observations by the same author, not only in confirmation of this opinion, but, intended to show that so far as the

* We never saw anger in any case of delirium tremens; we did see one patient standing on his defence in a threatening attitude, but it was only for a short time, while under the narcotism of eighteen or more grains of opium, which was then putting him into a salutary sleep.

[† Our esteemed correspondent seems, to us, not to have fully comprehended the meaning of Dr. Stokes. The main purport of his admirable Lecture on Delirium Tremens (see Vol. XIII, p. 536 of this Journal) is to point out the difference between mania from excess of alcoholic stimulation, and that from its sudden abstraction, and the entirely opposite treatment which they require. The Lecturer divides the two forms of the disease into *two* distinct *classes*. It is true he retains the term delirium tremens for both classes, and it may be better to appropriate it exclusively to that form which results from a deficiency of stimulus, but this is a mere difference about terms, and of very minor importance.—EDITOR.]

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morbus ipse is concerned, it ought to be left entirely to the operations of nature; that the danger is not from the delirium and wakefulness, which will wear themselves safely away, but from concomitant local diseases, of which these are the merest accident.

Now the great utility of all these papers consists in showing most conclusively, that even eminent physicians do not yet know that *mania à potu continuo* is not the same disease as *mania à potu intermisso;* and that hence they accuse their brethren of attempting to cure "in a very empirical way," because they suppose them to give stimulants and opiates in both these forms of disease, without even a thought of discrimination.

But of this charge we shall certainly plead not guilty. The advocates of the somnifero-stimulant treatment have never recommended the opiate and alcoholic practice in the direct consequences of intoxication, a disease which they consider as the very antipodes of delirium tremens. The two maladies are not of one genus, nay they do not belong to the same order, not even to the same class, one being we conceive a pyrexia and the other a neurosis. We are ashamed to write in the manner of the nosologists, but it seems necessary and very expressive on the present occasion.

It is certain that a majority of the best writers do rigidly confine the terms delirium tremens and mania à potu, to that sleepless maniacal state which is very often the consequence of the sudden abstraction or diminution of stimulus in those who have been long in habits of intemperance. Thus far we can go with certainty and no human being can go further without losing himself in a maze of hypothesis. A disciple of Rush would say that the sudden abstraction of stimulus caused a sudden accumulation of excitability; but why this should afford morbid excitement rather than healthy, or in what that morbid excitement might consist, he would very justly consider as beyond the reach of human attainments. Therefore, giving himself no concern about unattainable essences, he would wisely content himself with considering, whether the disease might be inflammatory or nervous; this would be enough for him, sufficient to ascertain and establish the general indications of cure.

So far gone in error are some authors when they accuse their brethren of treating this disease empirically, that, to make out their case, they jumble together under the same name two diseases, which are in their very nature, as well as in their indications of cure, as far removed from each other as nosology, or even nature herself could place them. There is not one advocate of the exclusive somniferous treatment who does not cheerfully acknowledge the entire propriety of Dr. Stokes's diagnosis, as well as the appropriateness of his *general* indications of cure, but his assumption that we give stimulants whether the disease arise from *potu intermisso*, or from *potu continuo*, must be rejected.

The advocates of the somniferous treatment consider that the remote and exciting causes of *delirium à potu continuo* are a unit, that is, the continued

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operation of ardent spirits, or of the inflammatory state of the system induced thereby; while in *delirium à potu intermisso*, the remote cause is the abstraction of stimulus, the predisposing is the morbid excitability produced thereby, the exciting causes some accidental irritants, no matter what. As to the proximate causes, one is a pyrexia, the other a neurosis, as already mentioned; of these we only know that one tends to inflammation, and that the other does not, that one is cured by antiphlogistic sedatives, and the other by excessive stimulation or by the sedation of narcotics in alarming doses.

Dr. Stokes, after recounting the sad mortality attending what he calls "the empirical treatment," says, "it is an important law of the animal economy that similar symptoms may arise from very different causes;" this, to a certain degree, is true, so far as human penetration can go, but it happens that the collective symptoms of temulent excitement and those of delirium tremens are not similar; the symptoms of that state of the system which requires debilitation and of that state which requires stimulants, are not identical. Perhaps they are not always as different as might be expected, perhaps they cannot always be distinguished by those who have not had some experience, nor can you say that enteritis can always be distinguished from a spasmodic colic, or a hysteralgia from an inflammation of the uterine region; yet we must insist that every person who has seen a dozen cases of delirium tremens *à potu intermisso*, and half that number of persons mad with the direct effects of intoxication, can as easily and certainly attain to the diagnosis as he can in nine-tenths of the diseases of the human body. Yet we have been deceived in this matter ourselves, which we published in No. XIV of this Journal; so have others been deceived, as may clearly be seen in their writings; but still the collective symptoms are not identical, and the history of the case, if it can be attained, will accord with this fact.

One reason that intoxication is frequently confounded with delirium tremens, it may be presumed, is this—an intemperate man merely diminishes his accustomed potations and then is attacked, as we have often seen, with delirium tremens. We had one standing patient, who, through a strange perverseness, would not be made to understand this reasoning. When he was told that his disease had been brought on by brandy, he would sometimes deny the fact and triumphantly exclaim that he had used none for many days; at another time he would say that he had not interrupted his stimulus for a single day; that, on the contrary, he had been taking it very regularly, but more moderately, just enough, as Frederic II said of his eel pies, "just enough to keep soul and body together." Here then he supposed my opinions were completely refuted. He could not believe that a quart a day was necessary to keep up a healthy excitement, and that to keep soul and body together, required a more cautious diminution.

The disease being brought on by a mere reduction of the accustomed quantity, the friends generally take care that the patient is furnished with what, to the best of their judgment, is a suitable stimulus; for it must be observed that

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the unlearned in medicine who are accustomed to drunkenness, know very well the general indications both of preventing and curing delirium tremens. Thus the sick man is continually supported in his disease, and the medicine not being sufficient to overcome the morbid excitability, the morbid excitement goes on increasing. We have met with many such cases, and particularly where patients had diminished their doses on account of some slight indisposition. Here the abstraction of stimulus often conspires with a diarrhœa, a catharsis, a blood letting, or some other debilitation, and the patient becomes sleepless, before even his physician has yet taken the alarm. A patient, too, is often in the incipient stage of this disease, before any one suspects it; he now begins to take his usual glasses, but they are not now sufficient, and the disease goes on. This we have often seen, and have as often found, that small doses of laudanum, fifty to one hundred drops, frequently repeated, were so manifestly useless, that we are not surprised to find the medicine condemned by those who have not the courage to increase the dose. The disease having once begun in a patient accustomed to afford a bad case, very large doses are required at once, small doses merely support life, or "keep soul and body together," but not in a healthy state; and if they are not supplanted by large doses, the disease continually increases, and the whole system of treatment is condemned. No remedy for such a state of things has yet been discovered but the highest doses of laudanum or spirits, or of both, which the system can bear; this position accords with experience, for we find from general testimony, that there is no abatement of the delirium till the brain is overwhelmed with a forced sleep. Without this, the patient must die, and must, of course, add another instance, however unjustly, to the number of cases fatally treated with opium, or, as Dr. Stokes says, "in a very empirical way." Numbers of cases, in confirmation of this opinion, now crowd on my recollection and are plainly seen in the lengthened mirror of twenty-nine years, which is bright before me. Not one of my own patients ever died of opium or through the want of it. Of more than *two hundred cases*, we have lost but four, and these were patients laboring under chronic diseases and organic lesions. But we do not say this boastingly, for the method of treatment is not our own; and, moreover, we can look back upon many patients who barely escaped, and who might have been cured "more quickly, safely, and pleasantly."

Dr. Stokes supposes a case of genuine delirium tremens *à potu deficienti*, and says "we derive very great advantage from the use of stimulus, we cure our patients principally by the use of opium, brandy and wine; but on the other hand I must confess I have never seen a case of excessive stimulation benefitted by such a plan of treatment; nay more, I have seen many patients, (*that is in excessive stimulation*,) who have been treated in this way, die with symptoms of inflammation of the brain or stomach and have found the diagnosis verified by dissection." Most unquestionably such patients so treated must die; but the Doctor should not have said that the

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diagnosis was verified on dissection, for truly there was no diagnosis made in the case.

The men were supposed to be laboring under delirium tremens requiring stimulus which was administered, when in truth they were intoxicated or laboring under the direct effects of intoxication, and the proper debilitation would have carried off the whole disease and verified the diagnosis in a manner more comfortable to all parties concerned. Dr. Stokes's paper is concluded thus:—"The rule I have laid down for myself is this; when the disease proceeds from a deficiency of stimulus, give wine, brandy, opium, &c.; but when the stimulation has been excessive apply leeches to the epigastrium and head, and if the disease still continue, then you may have recourse to the opiate treatment." Through every paragraph he carries out his doctrine. "If the disease continue"—this we are bold to say is not what he ought to have written; though in truth it is precisely consistent with his, as we suppose, erroneous views. He ought to have said—when the first effects of this excessive stimulation are removed and delirium tremens sets in "you may have recourse to the opiate treatment."

The great utility of Dr. Stokes's paper is, that it teaches correct practice under an erroneous nomenclature and this leads us to presume that others who do not explain themselves so fully and do not practise so discriminately, are teaching what they do not themselves understand. Hence it is that we hear of so many deaths imputed to delirium tremens; for it is a fact very honestly confessed by the advocates of a *various* treatment, that they are not near as successful as those who profess to be exclusively somniferous and to believe that the disease is exclusively nervous.

There is an old maxim—*optimum est alieni frui insania*—which may be softened into this, that it is a most desirable thing to profit by the errors of others; but the masters of moral wisdom might have extended the aphorism so as to include our own errors also. The Doctor's practice has been corrected by the blunders of others, but his nomenclature and diagnosis he ought to have corrected himself.

But many physicians write about the presence of fever, of inflammation, of turgescence of the brain in genuine delirium tremens, often requiring the lancet, or cups to the nucha, or leeches to the head, and sometimes all the antiphlogistics. We have seen a great number of these tremblers and yet we cannot believe that we ever saw one such case. Within the last eight years we have bled and cupped a few patients when there was the semblance of inflammation, but no benefit resulted; we purged, puked, poured cold water on the head in enormous quantities; all was utterly vain, though the state of the system *prima facie* called loudly for this treatment; opium was at last our safety. But mark the sequel;—to these same patients, when again attacked and with all their feverish symptoms, we gave large doses of opium from the first, and thus made "a quick, a safe, and pleasant cure." So that if ever there was a disgraceful ontology in the

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whole world of medicine it was here; the disease would appear to be an *ens reale*, as the metaphysicians would say, wherever it is found, and to be expelled the system or exorcised by the divine narcotic.

That great preceptor Dr. Rush was continually exhorting us to attend to the state of the system. So little had the subject been studied before his time, that it appeared to him necessary to preach, like Socrates, the same lesson continually; the consequence was that many of his numerous pupils seemed to consider the whole therapeutic science as consisting in the "*adpositio et ablatio*" of Hippocrates. But it is very possible to attend too much to the state of the system and too little to that of the disease, for it often happens that a local affection is to be cured only through the medium of the whole system, wherein it is sometimes necessary to raise this above and sometimes to sink it below its healthy action in order to remove the isolated disease. Thus in delirium tremens *à potu deficienti*, we may safely disregard the occasional inordinate force, fulness, and corded state of the pulse, for all this will gradually vanish under the judicious use of opium, particularly if ipecacuanha or tartar emetic be given therewith in as large doses as the stomach will bear without depression and without vomiting. Can any man discredit this, who remembers the enormous doses of laudanum and brandy that were given with triumphant success in the typhus petechialis of the Eastern states about twenty-five and thirty years since? Whenever in this fever they used debilitating antiphlogistics, the patient died, and a most vehement encephalitis with effusion and suppuration was found in the brain; yet the only successful method of cure consisted in giving large doses of opium, brandy, camphor, and other fiery stimulants.

We are sorry for the credit and consistency of medicine that these patients were not cured more scientifically; but nature is a wayward dame, she cannot be always turned out of doors, as Dr. Rush used to direct in dangerous diseases. Moreover we know so little of the nature of life and of the operation of medicine thereon, that it is difficult to generalise and compare with safety where experiments have not pointed out and sanctioned the result as well as the premises. Morbid anatomy, as confessed even by Dr. Ware, has thrown no light on the material causes of this unique disease; whatever has been discovered after death might always be attributed to some anterior or to some concomitant disease or to those congestions which take place in the last hours of life after all hope of a cure had been entirely abandoned.

It is maintained, No. XVII, p. 165, of this Journal, that "artificial sleep is not so necessary as has been supposed, that even in many of those cases where it is said to have been beneficially induced, it did not actually take place sooner than it would (have done) in the natural course of the disease." "That so far as the paroxysm is concerned, the patient should be left to the resources of his own system, particularly, that no attempt should be made to force sleep by any of the remedies usually supposed to have that tendency."

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The reviewer concludes, by recommending this paper to the advocates of "the stimulant school, as showing that equal advantages may be obtained without the use of narcotics." And in the last Number, p. 522, it is suggested, that "opium if not absolutely injurious to these patients, is at least useless; and that our success in this disease, will be sufficiently satisfactory without it."

Now as to a "paroxysm," we must say that no such thing is known in genuine delirium tremens. The disease is one continual strain, to use a musical term, from beginning to end, sometimes *piano* and sometimes *forte*, but there is no paroxysm; and as to the disease curing itself, or sleep creeping on spontaneously, or without stimulants, there never was such a thing *unless in mild cases*, when nature has already performed the cure. To leave a patient in full delirium tremens, to nature, is the expectant method in the ultimate degree, which will soon cure a bad case for the last time.

Dr. Ware proposes to prepare a certain class of his patients for nature's cure, by bleeding, purging, puking, cupping, blistering; but as for those cases that are the immediate consequences of liquor "no medicines can be required beyond a dose of salts and an infusion of valerian, wormwood, or hops." Now this phrase "the immediate consequences of liquor," shows plainly, that he considers with Dr. Stokes, that delirium tremens is sometimes the direct effect of intoxication, which may be frequently cured no doubt, by the means proposed, but as to the real delirium tremens, it happens that we have seen not a few cases, in which puking and purging had been used by the family, sometimes by the family physician, and *expectation* too, through several days, until the whole circle of friends were in despair and consternation, while the patient slept none, and was continually getting worse—such patients we have often put to sleep in a few hours, and have thus cured the delirium at once; that is, we have broken it to such a degree that a continuation of the opium in reduced doses, has quickly restored the patient to perfect health.

The advocates of expectation may call this violence,—unnatural, artificial sleep, &c.; but which is most violent or most unnatural—to throw the patient at once under the influence of "kind nature's sweet restorer!" or to let him, by way of expectation, run about the house shouting that armed men are preparing to put him to death; that the house is falling upon him, &c.; horrors upon horrors accumulating around him; till the disease wears itself away? Many days this must certainly require, for we have seen it tried for a week, without any other advantage than to show the utter inefficiency of the method.

But, what dreadful thing is this "artificial sleep?" What is called sleep, is the same thing to all human eyes, by whatever means induced. If we are not mistaken, all sleep is artificial and forced; wakefulness is the natural state of the system and the most desirable; no one yields himself to sleep, but because exhausted nature requires it. We saw a woman drop asleep in half an hour after a long and severe labour, and she did

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not awake for twenty hours; we saw that it was an easy healthy sleep, and we ordered that she should not be awaked. We have known people sleep twelve and more hours incessantly, after great fatigue and watching, but this was not unnatural, at least it was not morbid, but precisely what nature required after long watching and labour; so also if a madman sleep twenty-four hours, under a dose of opium, and then awake a sound man, his wandering intellect restored, his affections all centered on their proper objects, is this sleep unnatural, morbid, something worse than madness itself?

Expectation in medicine is a good and necessary thing; but where this ends and perturbation begins, every man has a right to determine for himself. This word does not afford a just or appropriate name for a sect or party; a physician who is eminently expectant in one disease is often a paragon of perturbation in another.

Between willing a thing and permitting it, there is no great difference. That physician then must be most *perturbating*, and must have a mind delighting above all things in uproar and confusion, who, instead of putting his deliri trementes to sleep, orders that they shall run about the house in their terrific insanity, till they fall down dead or commit suicide, an instance of both which we have known. Such a physician must be the very Napoleon of perturbation; and though patient, expectant, placid to the last degree, he cannot be considered as a physician in the best sense of the word, he does not cure "quickly, safely, and pleasantly."

"Unnatural sleep!" But Dr. Rush prescribed six drops of laudanum to an adult patient under circumstances which led this most perspicacious man to consider these few drops as a sufficient dose; a medical student who heard this prescription in amazement ran to the house next morning to inquire how miss had rested and was further amazed to hear that she had slept soundly the whole night. What kind of sleep was this, was it unnatural? The lady from some cause had slept as her physician desired; but suppose she had slept precisely as much under the influence of 300 drops, would the sleep therefore have been a whit the more unnatural? That sleep only is unnatural or morbid which is forced upon the patient when it is not needed and from which he rises unrefreshed; such sleep as an indolent man obtains on a feather bed after a full dinner from which he rises towards evening half apoplectic, with inflamed eyes, headache, and general languor. Did any physician ever see the *deliro-tremens* awake in this miserable state after a sound sleep from opium? Does he require like Frederick a dash of cold water in his face to brighten his intellects? But what think you of that sleep by whatever means obtained, which almost wholly restores the unhappy patient who has been running through the house and over the roof of the house for a whole week without a moments' sleep or sanity, seeing sprites, devils, serpents, armed men, all ready to destroy him and at last attempting to destroy himself—what kind of sleep is it, that suddenly cures all this? Oh, if procured by bleeding, blistering, purging, puking—

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by thus removing accidental irritants that stand in no relation whatever to the delirium and wakefulness—it must be natural and salutary; but if you have given twenty grains of opium, it must be unnatural and lethiferous. The patient however is restored body and mind without one symptom of injury and this seems to be the one thing needful. Let the incredulous look into Dr. B. H. Coates's essay on this subject and be convinced.

But it is answered that the disease is often unquestionably cured by various means, often without opium and sometimes by very small doses. We do not dispute this fact. The *mildest* cases of every disease are certainly cured by various methods; but for the severer forms of delirium tremens we contend there is no remedy now generally known but sleep procured by opium or spirits. In such cases the patient has been growing worse and worse for several days; he never closes his eyes for sleep; he runs about the house and out of the house day and night in the greatest terror, he sees some imaginary terrific objects and his wild but timid eyes are continually fixed upon them; he trembles from head to foot and tries to direct the attention of his friends to the frightful objects around him; his pulse is weak, frequent, salient, his skin covered with a clammy perspiration; his eyes are wild and denote great alarm such as you might readily conceive in a boy watching for ghosts, never red and furious as some authors relate; there is no pain in any part of the body; there is no fever; if acute inflammatory action did exist it is now suspended.

This is the picture of a case that will not cure itself, the patient is not, as Cowper says, "a troubled sea that rocks itself to rest;" on the contrary, he will certainly go on from bad to worse till his strength is exhausted. But we contend that all these, the worst cases, are curable by opium or spirits, or both conjoined, could we possibly apportion the dose to the exigency of the case in hand. To attain to the requisite discrimination herein, it must be confessed, will ever be a difficult and dangerous task; so perilous, that some physicians will lose their patients through timidity, while it is possible, that others, in their benevolent zeal, may run into the opposite extreme. The soporiferous practice is a most uncomfortable one to the anxious physician, and blessed be the man who shall discover some safer and pleasanter remedy. We have sometimes retired to rest, or rather to bed, after prescribing large doses of opium, but the image of the patient in his last stertor has been as terrific to us as falling houses and twining serpents to the patient himself. Such extreme cases, however, have not often happened, and we have now the comfort of presuming that we have saved some lives at this great expense of our rest and danger of our peace.

Such cases as the above, which we presume to be dangerous, we have witnessed far more than one hundred times, but not in as many persons. In our former sphere of practice, there were about one dozen standing patients, each of whom was the subject of a bad attack for many years. Opium, in doses of five grains was of no service, unless we had been called very

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early in the disease, which seldom happened. It is in such cases that opium loses all its credit, unless given in large doses, from ten to twenty grains.

These very patients, as well as I could ascertain, were never cured without my assistance, though some of them had friends who knew the nature of the madness, had learned much from experience, and were ever ready to administer opium or spirits to oppose the coming disease. We had acquired such skill in some of these standing patients, that we could prescribe twenty grains of powdered opium or an equivalent portion of sulphate of morphia, at a dose, and direct that half this quantity should be given in four hours, if the patient did not become sleepy. In this way, we have almost uniformly put the patient into a salutary sleep, and a smaller dose, given the moment he awaked, has almost completed the cure.

Thus it was, that, when Dr. Rodrigue went from this city into the midst of my practice, ten years ago, and saw the doses given and the certain cures they effected, he expressed himself as utterly astonished. But we do not pretend to superior skill; what we have thus done well, a great portion of educated physicians would have done better; we utterly renounce every feeling of arrogance in this humble imitation of abler men.

Now from the picture we have given above, with the pulse weak and frequent, the constitution broken by intemperance, the previous debility greatly increased by the abstraction of an accustomed stimulus, by days and nights of watching, by vomiting and purging, by abstraction from food, by a cold sweat, by incessant agitation, what is to be done by bleeding, purging, puking, cupping, blistering, by simple incarceration, hop tea, calomel, and cold bath, or by a choice of these things, however variously and skilfully combined? Will it be answered, that these means are to be employed to remove all concomitant impediments to health, when the delirium and wakefulness will wear themselves safely away.

Could the authors who reason in this way, and those who acknowledge a real disease, but advocate a *various* treatment, could they pretend to the general success which the somniferous practitioners arrogate to themselves, we should drop our pen at once; but the fact is, they do not, and hence our party are fairly left on the vantage ground.

If our opposers acknowledge, which we think they are bound to do, that the practice of the somnifero-stimulators is successful in their own hands, they cannot object to it unless on the principle of its temerity; and this, as we all know, has been a fruitful theme of argument, and not unfrequently of declamation. Some physicians appear to be greatly alarmed at the idea of giving more than from one to five grains of opium at a dose, and they condemn the larger doses, as likely to throw the patient into his final sleep. But if they never tried the experiment, they have no right to declaim on the subject. Medicine is a science founded in facts, not in theoretical prejudices. If, on the contrary, they have tried it, without killing the patient, this is enough for our present purpose; if they have unfortunately put the patient into his last

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sleep, let them come boldly forth with their cases, which may prove a useful beacon to others. It was long ago observed by one of the Fathers in Medicine, that unsuccessful cases and errors, fairly related, would prove eminently useful; yet no one in the opiate treatment, as far as we know, has acknowledged a fatal dose, except in a solitary case, related in the last Number of this Journal, p. 520.

But if they have not the courage to try the experiment, let them look abroad into the world of philosophical medicine, and they will find stranger things, than twenty grain doses of opium in delirium tremens. Collateral facts and reasonings are of immense importance, when direct experiments are wanting; nor can they be too much multiplied if judiciously used, and made subject to the test of experiment. Can physicians, then, not call to mind, that when the cerebral and nervous systems are fully pre-occupied by some powerful excitement, no medicine whatever, not even external violence, produces its wonted impression. Hence, the tremendous doses of opium in tetanus and spasmodic colic, the flagons of wine in the old fashioned way of treating typhus fever, the insensibility of the body to cold, when preoccupied by fear; and hence also, the smiles of the American savage, in more than crucial torments, and the joyful face of the Christian martyr, burning at the stake.

Now, if ever the brain and nerves were fully preoccupied, and prepared to resist the operation of medicine, it is in delirium tremens; hence the enormous doses of opium that pass for nothing in this disease. In mania too, from many other causes, the system often resists the operation of medicine, particularly that of narcotics, nor must it be forgotten that most of these unfortunate *deliri trementes*, have been long accustomed to ardent spirits, which hebetate the system with respect to opium; nay, many of them have gone through the opiate ordeal already in their various attacks of delirium tremens.

Do not the advocates for the treatment by emetics, find that it is generally necessary to give from ten to twenty grains of tartarised antimony, to produce full emesis, and is not this from ten to twenty times the quantity usually necessary in other diseases? Yet our doses of opium, so much declaimed against, do not rise in the same alarming ratio. Further examples are not necessary, or they might be adduced. It requires consummate skill, and a comprehensive philosophic mind, to proportion the doses of medicine, to the state of the system, which varies in various diseases; in truth there is nothing in which the physician can so clearly, and triumphantly demonstrate his superior skill.

Dr. Copland, in his *Dictionary*, Article *Delirium Tremens*, speaks of our recommending in our former paper, No. XIV, of this Journal, from ten to twenty grain doses of opium every two hours. This is rather an inadvertency; for though we did recommend such doses, yet we did not say, nor did we mean to imply "every two hours," for we have certainly never gone thus far in the poisonous adventure. The Doctor states too, that we speak of four

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ounces of laudanum having "been given partly by mistake, in twelve hours, which induced a sound sleep of twenty-four hours, and perfect recovery." That the patient did recover, and that he did sleep twenty-four hours, are facts as witnessed by Dr. Rodrigue, his physician, but I take some blame to myself for having related this case, as there was no satisfactory proof that the nurse did not deceive us. Yet we must contend that such a thing is possible under various circumstances unfavorable to the operation of narcotics; as, for instance, in persons who have been accustomed to the threefold narcotism of opium, spirits and tobacco.

The numerical system, which has been so usefully applied in establishing the relationship between symptoms and their causes, does not appear to us as applicable to the estimation of a therapeutic method. It is not the number of cases that is to be considered but rather the gravity of the disease, and the inevitable tendencies thereof which are ascertained by that "learned experience," as Bacon calls it, which is the result of impressions made from day to day through a series of years, by circumstances innumerable, the most instructive of which may certainly be committed to paper. For though the aged practitioner can hardly transmit more than an infinitesimal portion of his skill to the next generation, which is the principal cause of the tardy progress of medical science, yet there is a certain *anima medica* which is almost insensibly imbibed from the perusal of our old fashioned books; a certain community of spirit which obtains when we read the lively history of minute facts, as nature presents them.

All this appears to us to be totally cut off and lost by the numerical system of writing. Take 100 cases of pneumonitis and bleed them according to Louis's method, not till the third or fourth day, yet they may all be recovered if now skilfully bled and treated; then take an equal number in the same disease and bleed them from the first day, but unskilfully, and they may all perish. Neither time nor quantity nor both, is every thing; the constitution of the patient and the *effects* produced by bleeding and by the coadjuvancy of various minor remedies, are principally important.

An excellent writer in a late paper, (see the last Number of this Journal p. 550,) gives his readers eight series of patients, each having been treated on different principles and by different means. He does not describe any of these cases, so that to appreciate his statement, we are obliged to consider them all as equivalently ill, only so far as some of them had local diseases, neither caused by nor causing the delirium, nor yet having any necessary connection therewith, for such is his own opinion. This accords with the *numerical method*, and like that method in other particulars, it affords us no satisfaction. We should not require a particular description of every case; but simply the state of the pulse, the strength of the patient, the force of the delirium, the length of time the patient had been sleepless, how far his constitution was gone with intemperance—for from this short group of symptoms, the experienced practitioner can clearly see the tendency of this disease, whether it be to life or death.

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In the eighth series, there are twenty-nine patients, in which "the mode of treatment may be properly denominated *expectant.*" Of these one died of encephalitis and twenty-eight recovered without any treatment considered as directed to the disease itself. The fourth series consisted of two patients, both were bled largely and both recovered without any other remedy.

Now of the above thirty cases all cured by such simple means, the somniferous physicians, in the present state of their knowledge, must consider, some as plain intoxication or its inflammatory effects, and some as mild cases of delirium tremens which nature alone is capable of curing. Some were bled, some leeched, some puked, others were blistered on the nucha, and "all were more or less subjected to the operation of cathartics." Nothing then was done in these thirty cases but what was calculated to relieve the system of local embarrasments, for some medicines of the nervine class which were added, were considered by the prescriber himself as of no avail. Since then the symptoms in those thirty cases are not described, since they were cured by such simple means, or rather as the author would imply, cured of the mere delirium by no other means than unassisted nature, may we not fairly conclude that the disease was mild and without any tendency from the first to run into extremes? Moreover, patients being included in the author's definition who labour under the direct effects of intoxication, a portion of the thirty no doubt belonged to this class.

All which will appear the more certain when it is considered, that in his second series, seven cases were treated with small doses of opium, "not exceeding two or three grains in twenty-four hours," and that of these seven, two died without having slept. We ought to have been informed with what symptoms these two patients passed out of life; for dying sleepless, the reader must fancy that more opium might have been laudably tried.

In the first series are eight cases, "treated with large doses of opium with the intention of terminating the paroxysm by sleep." Of these eight, four proved fatal, having taken from twenty-four to seventy-two grains of opium in twenty-four hours. Three of these patients died without having slept, and here again, we are unfortunately left to divine the mode of their exit; and, attached as we are to the somniferous treatment, we cannot but fancy that more opium might have been tried, at least upon the principle of "doubtful remedies rather than none." But one of these four patients "died after sleep had been procured, never awaking, but expiring in a state of coma." Seventy-two grains of opium in twenty-four hours, is certainly a large quantity; but we are not informed whether this patient took the twenty-four or the seventy-two grains. Dr. T. Hewson, of this city, gave precisely this quantity in the same time, "with the most gratifying success." (Dr. B. H. Coates's Essay.) We ought to have been informed precisely how much the dead man had taken, in what time, and whether he took it on an empty stomach, whether he had been accustomed to this or any other variety of

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narcotism; for this being the first case recorded in which the narcotic proved fatal, it would be highly interesting, were it detailed with all its circumstances. Is it of more importance, according to the numerical system, to know merely that the patient took opium, than to know whether he took the twenty-four or the seventy-two grains?

But it is high time to end this paper, which, however, we cannot do without sincerely deprecating all imputation of hypercriticism. It is the fate of the noblest minds in medicine to be transported by a benevolent zeal and hope in a new doctrine; such, we fancy, is the comfortable fate of this eminent physician in his application of the numerical system to the study of delirium tremens. We have expressed our opinions with unlimited frankness, because we believe they are founded in truth and nature, as they certainly are in authority and in a long continued, painful experience. We are well aware, that they are not logically arranged, nor yet illustrated or expressed to the satisfaction of the reader; they are desultory, and such they were intended to be, as ratiocination embraces much that is familiar, which, in the present case, would occupy too much time and space.

Summary:—1. That delirium tremens is the consequence of a sudden abstraction or diminution of strong drink or opium in many persons who have long used either of these poisons intemperately.

2. That necrotomy has never discovered any lesions to which it could possibly be attributed; that it is purely nervous as far as human knowledge extends. As a stringed instrument is thrown out of tune by the atonic state of the atmosphere, so is the cerebral system in this disease, by the debilitating abstraction of stimulus.

3. That in all its grades it is curable by opium, or by ardent spirits, or by a simultaneous use of both, though we shall sometimes fail by not being able to ascertain, before it is too late, the requisite dose.

4. That it often supervenes on a system labouring under acute inflammation, the progress of which it will sooner or later suspend, so that opium may be given in the necessary doses. That though it arrests inflammatory action, it does not remove the effects thereof, which is the work of time.

5. That suspending inflammatory action as it does, those authors who speak of pain in the head with fiery eyes, requiring the loss of twenty to one hundred ounces of blood, have confounded the disease with temulent excitement.

6. That there are not two varieties of the disease, one to be cured by opium and another by evacuation, one the consequence of too little, and the other of too much stimulus.

7. That evacuations, of whatever kind, have no tendency to cure this disease; they cure temulent delirium or its inflammatory consequences.

8. That mild cases have often been cured by various means, which fact has been the cause of many errors; that the worst cases are incurable without opium or spirits in enormous doses.

9. That there is a delirium frequently arising from drunkenness, which

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is often attended by convulsions, fits of drowsiness, flushed face, and inflamed eyes, with angry passions, noise and turbulence, in a few cases with trembling, and in many, with too much watchfulness; which delirium is often postponed for a day or more after the patients have quitted their spirits, but it is radically the inflammatory state of the system thereby induced. This, we believe, is often taken for delirium tremens, though it is easily distinguished therefrom, and requires a very different treatment. When this is subdued by the proper means, true delirium tremens sometimes supervenes.

ART. V. *Remarks on Pneumothorax, with cases, and an experimental inquiry into the causes of the metallic sounds heard in that disease.* By JACOB BIGELOW, M. D., Professor of Materia Medica, and of Clinical Medicine in Harvard University.

THE sounds which are heard during auscultation in cases of pneumothorax, especially when life has been prolonged for a considerable time under the disease, have a character, of which the term metallic is eminently descriptive. This character may be recognised not only in the respiration and cough, but frequently also in the voice and the succussion and percussion of the chest. The sound is either sharp and tinkling, or it is prolonged, reverberating and ringing, according to the kind of action under which it is produced. In both cases the mechanical condition of the chest is apparently the same.

The sounds of pneumothorax, as will appear from the experiments detailed at the end of this article, are divisible, with relation to their causes, into those of impulse, and those of reverberation. The first requires the presence of liquid, the second may take place with only the presence of air. The first includes all the varieties of metallic tinkling which are heard in respiration, which also take place after speaking and coughing, and which may be abundantly produced in many cases by succussion of the chest. When well developed it is sharp, silvery and musical, resembling the snapping of short brass wires in certain children's toys. The second class, that of reverberating sounds, includes the varieties of amphoric breathing, and may be imitated by inflating a recent bladder to a considerable degree of tension, or less perfectly by blowing into a glass, or metallic vessel. When a sudden impetus is given to it by coughing, this sound becomes more intense, ringing and metallic. The voice also at times acquires the metallic resonance. If percussion be performed on the distended chest, while the ear is applied to its parietes, a ringing sound is communicated having more or less of a metallic character.

Metallic tinkling of the chest, although one of the most marked of the

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physical signs, appears not to have been fully explained in regard to the immediate cause by which it is produced. Various hypothetical solutions have at different times been offered, but all of them have been objected to, or seem liable to objections, on the score of insufficiency; and no one of them appears at this time to have obtained a general assent. A brief summary is sufficient to present the leading features of the different modes in which this phenomenon has been accounted for.

The only explanation given by Laennec of this sound is by him considered applicable to cases of what he calls simple hydro-pneumothorax, in which there is no communication with the bronchia; a form of the disease however, the existence of which has been doubted by some subsequent writers. Laennec says that if a patient happen to raise himself suddenly in bed, and a drop of fluid fall from the upper part of the cavity of the pleura into the fluid beneath, it produces a sound like that occasioned by a drop of water let fall into a flask three quarters empty, and this sound is immediately followed by a distinct metallic tinkling. A similar sound he says may be heard by ausculting the epigastrium of a person who is swallowing water in minute quantities. This explanation has been adopted by various subsequent writers, as a general mode of accounting for the phenomenon of metallic tinkling.

Dr. C. J. B. Williams, author of a valuable work on diseases of the lungs and pleura, explains metallic tinkling on the principle of reverberation or echo, produced in a cavity of uniformly reflecting parietes by the communication of a sound, or of a seniferous impulse to the air contained within it. He considers that in common cases of pneumothorax communicating with a bronchus, if the fistulous opening be small, metallic tinkling will be produced, but if large, or if several such openings exist, there will be only amphoric resonance.

Dr. Thomas Davies, in his lectures at the London Hospital on diseases of the chest, says: "The metallic tinkling is caused by the resonance of air agitated upon the surface of a liquid contained in a preternatural cavity formed in the chest."* This explanation may have been suggested by a note of M. Meriadec Laennec in his edition of the great work of his relative, who says that the sound in question appears to depend upon the vibration of a gas upon the surface of a liquid.

Dr. James Houghton, author of the article pneumothorax in the Cyclopedia of practical medicine, adopts the idea of an echo, which he derives both from the dropping of fluid in a cavity, and from the entrance of air through a fistulous opening. The latter variety, he says, appears to be manifestly the echo of the air forced into the cavity, reverberating against its hollow parietes; and the sound, he thinks is more particularly caused by the bursting of minute air bubbles at the orifice of the fistula, formed as the air tra-

* London Medical Gazette, Vol. XV.

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verses the latter by the entanglement of mucus. He thinks that the tinkling will be more or less loud and distinct in proportion as the fistulous opening is larger or smaller.

Mr. Guthrie, in the London Medical and Surgical Journal, 1833, asserts that Laennec and also all who hold that metallic tinkling "depends entirely on the passage of air through a hole in the lung into the cavity of the thorax," have been mistaken, and in opposition to this he mentions that to produce the sound in question, the air in the cavity must necessarily be compressed. "I do not, says he, deny the facts of the air, the hole in the lung, or the fluid; but I believe that to produce the sounds of the Jews' harp (metallic tinkling) the air in the cavity must be greatly compressed."

M. Beau, a French writer on the causes of the respiratory *bruits*, is not satisfied with the explanation of Laennec, and contends that metallic tinkling is produced by a bubble of air, which having traversed the fluid, bursts upon its surface. He founds his opinion on the fact, that he has never witnessed metallic tinkling, when the communication with the external air was above the level of the fluid. Dr. Spittal, of Edinburg, seems to have suggested this explanation of metallic tinkling, by the bursting of air bubbles as early as 1830.

Magendie, in his lectures quoted in the Lancet of 1835, says: "The causes which produce the *tintement metallique*, are not by any means well understood. Suppositions have been made, (they are made and abandoned, with surprising facility in medicine,) but when we come to examine them, we find nothing but mere theories without any shadow of proof." He tells us that the supposition that a drop of liquid sticks to the upper part of a cavity and then falls into the fluid below, is mere hypothesis, which may, or may not be true. He also denies the sufficiency of the explanation that the tinkling is caused by a bubble which traverses a fluid, and bursts upon its surface. His objections are grounded on an experiment, which he proceeds to repeat in presence of his class, showing the insufficiency of both these causes to produce metallic tinkling. In a dead subject, a quantity of fluid amounting to about half a pint was thrown into the chest. A perforation was then made through the pulmonary tissue, so as to establish a communication between the bronchi and cavity of the chest. A quantity of air was then forced in through the trachea, so as to enter the pleural cavity. No metallic sound was produced in the operation. Water was then dropped in through an opening in the upper part of the chest upon the fluid below, but this also produced no tinkling. Another orifice was made in the lung beneath the surface of the fluid and air injected as before. A bubbling sound, or "craquement" was heard in the chest, but nothing of a metallic or tinkling character could be perceived. Magendie considers himself as having disproved the explanations to which his experiments relate, but he does not offer any new one of his own.

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In regard to Mr. Guthrie's explanation, which supposes the necessity of compressed air being present, this has been effectually set aside by the fact, that although in extreme pneumothorax, the air in the pleura is moderately compressed, yet metallic tinkling is known to be also produced in large tubercular cavities of the lungs, which communicate freely with the atmosphere, and therefore are not subject to any compression whatever.

The solution of this phenomenon given by Dr. Davies, and Laennec Junior, that it is caused by the resonance of air, agitated upon the surface of a liquid, seems to be too vague and unsupported, to require particular attention.

In regard to the explanations given by Drs. Williams and Houghton, which ascribe metallic tinkling to an echo, or reverberation of air from the sides of a cavity, the solution seems to me, to be neither adequate, nor very probable. Echo is the secondary sound produced by the reflected vibrations of the atmosphere. It becomes powerful only when many reflections converge towards the same point. Air moreover is a feeble conductor of sound, when compared with liquid or solid bodies. It is unnecessary therefore to suppose that one of the most striking sounds heard in auscultation, is produced by the secondary movement of a feeble conductor, when we have between the ear and the place of impulse, the direct agency of a much more powerful conductor, viz. a liquid. To elucidate this point, let any one perform the following experiment. Into a large earthen or porcelain bowl, pour a few ounces of water. Then produce a slight, and barely audible sound, by rubbing or snapping together the ends of the nails of the thumb and finger. If this sound is made in the air in any part of the cavity of the bowl above the water, it remains feeble, but if the nails be immersed below the surface of the water, the sound instantly becomes augmented to many times its former intensity, and it will be particularly intense to the ear of an auscultor applied to the outside of the bowl. Here then is a parallel case. The liquid in Pneumothorax and not the air, as will hereafter be seen, conveys the sound of metallic tinkling to the walls of the chest, and these transmit it to the ear of the auscultor, constituting an uninterrupted chain of vibrations.

Considering the subject as being yet imperfectly explained, and therefore, open to further inquiry, I have made some experiments in connection with the following cases, which I hope will not be found irrelevant to the question.

Case I. J. B. cordwainer, aged forty-four, entered the Massachusetts general hospital, December 28th, 1836.—He has been troubled with cough and dyspnœa, during most of last year, increased during summer. Yesterday after exposure to cold during perspiration, had a sudden increase of cough and dyspnœa with pain shooting from side to side, and hoarseness. Now, skin hot and dry, face flushed pulse 98, respiration short quick, 50 per minute, cough hard, with viscid frothy mucous sputa. Complains of

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pain in head and across hypochondria increased by upward pressure, or cough, tongue white, costiveness, dysury with frequent micturition.

29th, *31st*. Percussion dull on right back, sufficiently resonant on left. Respiration very feeble in right back, with a slight bronchial sound opposite spine of right scapula. Bronchophony nearly articulate in same place. Supplementary puerile respiration in left back, Hoarseness amounting to aphonia, cough frequent, painful, with dyspnœa. About ℥ii. of muco-purulent sputa daily. Costive; sleeps little.

January 2d, 1837. Has rested and felt somewhat better for two days. In right back respiration nearly inaudible, but voice and cough distinctly amphoric.

4th. By degrees the respiration in right back has grown more audible, and amphoric. Percussion resonant. In left back voice natural, respiration puerile. Purulent sputa, one to three ounces.

5th, *8th*. Metallic tinkling in right back, at lower edge of scapula, slight and few, heard on each day. Amphoric respiration; voice and cough audible from summit to base of right chest. Dyspnœa and cough more easy. Percussion of right back tympanitic to base of chest; intercostal spaces prominent; right back when viewed vertically, much more prominent to the eye than left; semi-circumference an inch greater; intercostal spaces prominent, the anterior ones level in supine posture. In erect posture, base of right chest less resonant than when lying on face or left side.

9th. Paroxysms of great dyspnœa, obliging him to get out of bed. Breath, voice, and cough; amphoric from summit to base of right back. Frequent metallic tinkling. Resonance of front and back, of right side on percussion. Purulent sputa, ℥iss.

11th. Rested better; pulse 104; anterior right chest tympanitic on percussion, with inaudible respiration from top to base; voice scarcely audible through parietes at same place, but towards base amphoric. Respiration in right back feeble, but amphoric, accompanied by continual metallic tinkling, frequent and rapid, resembling the boiling of a fluid in a glass retort or flask. Respiration highly puerile in whole left back; slight gurgling under clavicle. Very great exhaustion and anhelation, after rising to cough. Generally unable to expectorate unless he turns upon his left side; after which movement the pus flows freely.

12th, *13th*. Many turns of violent and suffocative dyspnœa; metallic tinkling softer. Respiration in right back very feeble, in left back puerile.

14th, *16th*. Breathes with more ease. Some ounces of purulent sputa raised each day. Amphoric or metallic respiration, voice and cough, with metallic tinkling more rare and feeble. Right anterior chest quite resonant on percussion, to the extreme base of the chest on inspiration, but about an inch less in extent at expiration.

From this time he continued delirious, with occasional twitching of

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muscles; respiration high and rapid; inaudible, or amphoric, in right front; faint metallic impulses and mucous rales, till the 21st, when he died.

Autopsy, Two and a half hours post mortem.—Emaciation not great; right side of thorax enlarged; intercostal spaces obliterated, this side measuring an inch more than the left, opposite the lower end of the sternum. Percussion resonant, for a quarter of the semi-circumference, flat behind. Succussion of the chest gives a distinct metallic sound from the motion of fluid. The right chest when perforated through water (see experiment I.,) discharged much air, and subsided gradually.

Thorax. Right pleura with strong old adhesions at apex, and along mediastinum; elsewhere covered with false membranes, mostly free, soft, whitish, recent. Its cavity contains nearly two quarts of opaque sero-purulent fluid, with detached flocculent masses of lymph. The lung being inflated in situ, air issued freely from behind the base near the spine, but the orifice could not subsequently be identified, on account of the rupture of cavities made in removing the adherent lung from the chest. Right lung greatly compressed, condensed, and nearly devoid of air, the upper lobe half destroyed by an abscess, a cavity an inch square, in the upper part of the lower lobe, and tubercles scattered through all. Left pleura with some old adhesions. Lung large, somewhat emphysematous, upper and lower lobes tuberculous, a cavity capable of holding ʒi. in the upper part of the lower lobe. Air passages of natural size, some redness in right bronchia. Glands at bifurcation of trachea healthy; those in upper part of thorax and the cervical, enlarged and moist, but not tuberculous.

Pericardium contained about an ounce of turbid serum, with flocculi of recent lymph; heart healthy; right auricle slightly adherent; blood in right side partly liquid, partly coagulated, with some fibrin; in left auricle the same, but no fibrin.

Abdomen. Liver of average size, rather dark and friable, pushed down so as to reach the umbilicus, compressed so that its superior, and anterior surfaces formed a right angle. Gall bladder containing ʒv. of very dark viscid bile. Stomach sufficiently healthy, except some small red spots about the small curvature. Mucous membrane of small intestines healthy.

Case II.—I. C., ætat. 44, sailor, entered the hospital May 28th.* He was previously in the house three months ago with cough, and slight tuberculous signs. He now reports that he kept at work continuing pretty well until May 24th, when he had headache and dizziness in the afternoon, referred to having got wet in the rain the night before; in the evening fainted, and in the night had coughing and retching; raised without pain ʒss. more or less of frothy blood; has had much cough since, mostly in the night, with

* This case was most of the time under the care of Dr. Hale.

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scanty expectoration of frothy mucus; cough and long inspiration have caused pain in the right side, and across the chest; has had no other pain, no chills, nor flushes; but has perspired considerably; has had little appetite and much thirst, bowels have been open daily; urine high coloured; feels very weak; tongue clean for most part, a little coated at roots; pulse 118.

29th. Slept better than out of house, but coughed considerably towards morning.

30th. Rested badly from great dyspnœa, which came on between nine and ten last night; bathed in a sweat; pulse 96; mucous rale in the throat; amphoric sound in respiration below left scapula; percussion resonant in the same place; respiration puerile on the other side; lies on the right side, much distressed on lying on the back or left side. Half a pint of thin mucous fluid sputa, frothy on top and opaque.

31st. Rested badly from dyspnœa, requiring him to maintain a stooping posture; five or six dejections; pulse 132, sitting up; dyspnœa now less urgent; a highly distinct metallic tinkle heard in the left chest, disappearing when he stoops forward returning as he bends back. Just below the angle of the left scapula strong amphoric respiration with clear metallic tinkle. In axillary region sound as of striking a brass vessel with a nail; great resonance of the left chest, both behind and in front on percussion. Strongly puerile respiration in the right back.

June 1st. Slept half the night by intervals sitting up and stooping forward No dejection; pulse 144; tongue moist, thick coat on centre, livid; countenance distressed, anxious; respiration 32, laborious; no pain when at rest, but on motion sharp pain through the left chest, below the region of the heart; speaks only in a whisper; feet and ankles œdematous; whole left chest both front and back very resonant; respiration amphoric with metallic tinkling loud and musical in the whole left back below spine of scapula and whole left front from clavicle downwards.

2d. Slept pretty well in the same posture as last night; two dejections; countenance anxious; skin warm with profuse perspiration; pulse 144; tongue white in centre, livid, moist; respiration 30, laborious; voice better than yesterday; amphoric resonance diminished; metallic tinkling as yesterday.

3d. Slept pretty well in his chair as before; four dejections or more; countenance continued distressed; skin moist but perspiration not excessive; pulse 128; respiration 32, somewhat less laborious, except after coughing; unable to lie down in consequence of increased difficulty of breathing and cough; cough not frequent but paroxysms long and severe; percussion every where very resonant in left chest except for a small space about spine of scapula, where it is only equal with the right; resonance continues to the very base of chest; respiration vesicular but feeble about spine of scapula; amphoric in lower half of back; natural respiration without metallic tinkle; after cough-

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ing large and musical tinkle; in front no respiration heard below line one inch below nipple, above that metallic tinkle for the space of two or three inches and above amphoric resonance in natural respiration; in forced respiration metallic tinkle over whole left chest; no resonance of voice; in right chest respiration puerile.

4th. Slept pretty well in posture as for the last four nights, except that for two hours near morning lay down in bed and slept on right side with head low. Numerous dejections; countenance less distressed; pulse 124; cough less difficult but still laborious; about ℥iss. of adhesive muco-purulent sputa; skin moist and warm; resonance of left back less than for some days past, though still greater than natural except about scapula; immediately over and about scapulæ, percussion nearly or quite equal in both backs; on two lower ribs of left back percussion resonant while leaning forward, flat on leaning backwards; respiration in left back vesicular about scapulæ and for an inch or two below, then amphoric for a space about the breadth of the hand, inaudible at base; no resonance or tremor of voice discovered either in back or side; metallic tinkling in front as before: also in back after cough. Sudamina above and about clavicles.

5th. In bed most of the night lying on right side; slept two or three hours by naps; four or five dejections; countenance improved; ℥ii. of adhesive muco-purulent sputa; pulse 108; tongue clear at edges, moist, coated in centre, white, general colour livid; percussion resonant down to sixth rib in left chest: flat immediately below; percussion equal in both backs over scapulæ, and for two fingers' breadth below: below that much more resonant on left side, down to last rib, while leaning forward. When leaning back, more dull in the whole of the resonant space in back. Natural respiration vesicular about scapulæ, with sonorous rale: below scapulæ, amphoric resonance. In front, metallic tinkle after cough; metallic tinkle also in back. No resonance of voice at base of chest.

6th. Slept two or three hours during night, partly in his bed, lying on right side; partly in his chair; three or four dejections; very weak; pulse 120. Tongue still livid, cleaning at tip and edges, coated in centre. In natural respiration before fatigue, the only sound heard in left front chest is a slight sibilous rale. In same respiration, on leaning forward, amphoric resonance and metallic tinkle heard below scapulæ. Cough much the same: ℥iij. of adhesive muco-purulent sputa.

7th. In chair all night; slept three hours at intervals; five dejections; countenance more distressed; pulse 132; respiration 36, more laboured than for the last two or three days. Tongue cleaner, rather less livid; nearly ℥ii. adhesive sputa; coughs, he thinks, about once an hour; percussion dull in back on lower rib, when leaning forward; respiration amphoric both in front and back; natural breathing unaccompanied by tinkle.

8th. In chair all night; three dejections. Kept awake by difficulty of breathing. Cough less; expectoration about ℥i. adhesive purulent mucus.

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Countenance much distressed; pulse 132; tongue more coated; respiration 32—laboured. Hair, skin and clothing wet with perspiration. In natural respiration very little sound perceived, except some amphoric resonance and occasional metallic tinkling. Percussion, when leaning much forward, flat on lower rib, resonant above; when sitting up, flat on four lower ribs. A peculiar metallic ringing sound perceived by ear applied to sternum, when the back is percussed.

9th. In chair all night; slept none till daylight; three dejections. Since four o'clock has felt easier and breathed more freely; countenance less distressed; perspiration copious, skin warm; pulse 116; respiration 32; expiration and inspiration nearly equal. In quiet respiration only a feeble amphoric sound, accompanied with metallic tinkle. Amphoric sound accompanies the voice, and also percussion of the chest. Flatness of left back in erect position, extending only to fourth rib from base. Respiration in back with sibilant rale about spine of scapulæ, amphoric below. Forced respiration, accompanied with loud amphoric sound and tinkle. Cough less frequent, but severe, causing pain in left side. Less than ℥ss. of opaque muco-purulent sputa.

10th. In chair most of night; slept very little, in consequence of dyspnœa, cough and pain in chest: one dejection. Tried lying in bed; was obliged by pain and dyspnœa to get up after ten minutes' trial. Countenance much distressed; breathing very laborious; respiration 40 in a minute; pulse 144; skin warm and moist; superficial veins much distended; percussion flat in left chest below a line about an inch below the nipple, on slightly leaning forward; flat below same level in back, resonant above. In natural respiration the only sound heard is a sibilous rale, perceived over whole upper part of front left chest; same amphoric resonance accompanying the voice; has coughed but little except when he lay down. About ℥ss. of thick, opaque adhesive sputa, mostly of a greenish colour.

11th. In chair all night; slept none from dyspnœa; some pain in left chest; two dejections; countenance much distressed; coughs little; expectoration pretty easy; ℥ii. of adhesive muco-purulent sputa; pulse 144; percussion flat below nipple, also in back below corresponding line—resonant above; sonorous rale in whole front chest. No other sound in natural breathing. Amphoric resonance in back, feeble in natural breathing, loud and musical after cough. After speaking, metallic tinkling in front.

12th. Lay on couch all night without having head much raised. Could lie on left side as well as right, the first time for several weeks. Rested very well, but did not sleep much; one dejection; respiration 36, somewhat laboured, but less so than for several days past. Countenance less distressed; pulse, after waking, 108; tongue much less livid, moist, with a broken coat in centre. Percussion of left chest (still lying on left side) quite resonant, except at most dependent part of side, where it is flat. In natural respiration, the only sound heard is sibilant rale both in front and back. Forced

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respiration, either by speaking or other effort, amphoric. Coughed but little; less than ℥i. adhesive, white, frothy, mucous sputa. Immediately after rising, loud, ringing, amphoric resonance in respiration, and especially in cough, heard both in back and front. Limit of flat sound on sitting, on a line an inch below the nipple. Same metallic ringing sound on percussion of chest as before.

13*th*. In erect posture most of night; slept little from dyspnœa; three dejections. Discharge from bowels thin and watery; countenance moderately distressed; perspiration not excessive; pulse 116, tolerably full; respiration 36, high, laborious. In erect position, resonance on percussion extends down to one finger's breadth below nipple. Below this line, intercostal spaces on a level with ribs; above, intercostal spaces projecting, resonant. In ordinary respiration, amphoric resonance loud and distinct in upper part of chest. A ringing sound, on percussion, as before. No metallic tinkling heard. Abdomen full, moderately resonant.

14*th*. Slept very well, lying down, on either side; four dejections. Countenance less distressed; feels better; pulse 108; respiration 36, moderately laboured. Inspiration and expiration nearly equal. Percussion flat below line, a finger's breadth below nipple, resonant above. Same ringing sound as before, on percussion. Sounds of fluid readily distinguishable on succussion, heard with ear at a distance of a foot from chest. Moderate amphoric resonance in ordinary respiration. Two sides of chest nearly equal on measurement; left mamma more prominent to the eye than right, intercostal spaces protruding slightly. After some fatigue, amphoric resonance, ringing. Ribs of left chest scarcely raised in respiration.

15*th*. Slept pretty well, mostly in sitting posture; three dejections. Breathing more difficult when he attempted to lie down. Countenance anxious and distressed; skin quite cool, wet with perspiration; large sudamina about clavicles; respiration 36, laborious. Inspiration quicker than expiration. Cough little. Percussion about spines of scapulæ still equal on both sides. Ordinary respiration amphoric and ringing; when a little forced, voice and percussion ringing as before. Sound of fluid on succussion heard at distance of several feet.

16*th*. Slept none in night; was in sitting posture a part of the night, and in recumbent a part; breathing with equal ease in both; two dejections. Feels a little better; pulse 112; respiration 32, somewhat laboured; expiration and inspiration nearly equal. Tongue moist, clean; perspiration profuse; skin warm; sudamina about clavicles; coughed none. Does not know cause of wakefulness; thinks it was not difficulty of breathing. Lying on back, with shoulders elevated, whole left front resonant. In same position, percussion flat below axilla. Ringing sound on percussion not perceived in this position—percussion being on same side with face. Respiration simply amphoric in ordinary breathing, ringing on speaking.

17*th*. Slept most of night in sitting posture and recumbent, lying on back

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or right side. Countenance much distressed; respiration quite laborious; inspirations quick; pulse 112. Tongue moist, slight coat on lobes, very slightly livid; skin cool and moist. Pain near left nipple if he lies on left side; no pain when at rest in any other position. Very little cough, ℥ii. frothy mucous sputa. Line of flat sound level with nipple; respiration in right chest loud and coarse. Sounds in left chest as before. Ringing sound on percussion perceptible when percussion is on same surface with ear, in erect position.

18*th.* At six and a half A. M. found patient lying on back with shoulders raised, breathing quick and with tracheal rale. Eyes closed, pulse very small and feeble; extremities cold. Died soon after.

Autopsy, eight hours post mortem. Body not much emaciated, skin livid, lower extremities œdematous.

Left chest quite resonant to a line with axilla, flat behind this line. Right side dull over whole space below pectoral muscles. The air rushed out from a perforation on left side, as detailed in Experiment I. Left pleura universally inflamed, mostly red and roughened, and lined with a soft, bluish-white false membrane of variable thickness, separable in some places into layers, containing about five pints of thin, purulent, inodorous liquid, with coarse masses of lymph lying loose in the depending parts. Left lung collapsed very small, fleshy, bluish-black, pressed against spine and ribs, and nearly destitute of air, having a coat of lymph, and adhering behind superiorly. A rounded fistulous opening was found, half a line in diameter, and situated on the posterior surface of the lower lobe, an inch and a half below its summit. Through this orifice air issued, if blown into the trachea, and a probe pressed upwards entered a large bronchus. This opening communicated immediately with a superficial cavity an inch long by half an inch broad, and which contained a whitish, friable, opaque substance. No other cavity was found, but small tubercles and gray granulations in various parts of this lung. The bronchi contained bloody fluid, were pale, thin and polished, excepting that which led to the cavity, and which was thickened, darker and less polished.

Right lung universally adherent by pale, soft, friable, recent membrane, forming bands below, some of them an inch long, among which were cavities, containing ℥viii. of reddish fluid. This lung contained many tubercles, and a cavity an inch long at its apex.

In front of the neck was a tumour, occasioned by an abscess situated between sterno-hyoid muscles, containing ℥ss. of pus, with a lining of tuberculous looking matter.

Pericardium pushed to the right side, more than two-thirds of it beyond the median line. Heart healthy, except perhaps slight hypertrophy of left ventricle, which measured five-eighths of an inch thick at base, and five-sixteenths at apex. Weight, nine and a half ounces.

Liver somewhat enlarged, rather dark, pushed down within an inch or two

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of the umbilicus. Small intestines tuberculous, especially on Peyer's plates, towards the end of the ilium, but no ulcers. Other viscera mostly natural.

Case III.—A. C., a young gentleman aged twenty, called me to visit him June 28th, having just returned from a journey to the south. He reported that two years previously he had had a "lung fever," since which time his health has not been good. Last summer he was troubled with slight pains in the chest, emaciation, loss of strength, and some hectic symptoms, but does not recollect much cough. Being considered phthisical by his physician, he had been advised to pass the winter in the southern states. My first visit was made to him on the second day after his return, and one day before his death. I found him thin and feeble, barely able to sit up, with a hot skin and circumscribed redness on his cheek. Dyspnœa by no means urgent, decubiture dorsal, pain and stricture across both hypochondria, and none felt elsewhere: pulse 80. Left chest tympanitic, respiration inaudible; a slight metallic tinkle heard singly at each inspiration and expiration. Pulsations of heart feeble in cardiac region, stronger on right side. On the following day, without any great aggravation of dyspnœa or distress, he became much prostrated, with a small, irregular pulse, cold sweats, and diminished sensibility, and died on the succeeding night. By his own testimony and that of his friends, his cough had been slight, and the dyspnœa at no time urgent.

Autopsy, sixteen hours after death. The whole anterior chest resonant, the left tympanitic. On perforating the left chest through water, great quantities of air escaped. [See experiment I.] The quantity of sero-purulent fluid was not estimated, water having been thrown into the chest for the sake of the experiment. The left lung was adherent superiorly and posteriorly, and had tubercles and cavities in its upper lobe. The lower part of the same lobe was indurated by tuberculous infiltration, and had about the colour of gray hepatization. No communication between the bronchia and chest was detected except those produced in the cavities torn in the separation. Right lung healthy, excepting a few tuberculous lumps in its upper lobe. The heart was very small and flaccid, and was pushed almost wholly into the right chest. Mitral valves somewhat thickened at their roots with slight vegetation. Liver depressed, dark purple, flaccid. Gall bladder healthy.

I consider the last case as remarkable for the absence of any great dyspnœa or distress, after the signs of pneumothorax were so distinct as to lead to an unequivocal diagnosis of that disease.

Experiment I. Previously to the autopsies of the patients who were the subjects of Cases I. and II., a glass cylinder, open at both ends, was pressed into close contact with the chest, so as to hold water. Some ounces of that fluid were poured in, and a perforation was made through it, into the cavity

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of the chest on the distended side. Immediately a large volume of air escaped from the chest, bubbling upwards through the water. In the third case, no cylinder being at hand, a superficial cavity was made out of the dissected integuments of the chest, and filled with water. Through this water a perforation of the chest was made on the left anterior surface. The air rushed out, producing strong ebullition, as in the former cases. The experiment was then repeated on the right side, and the perforation made through water as before. No air in this instance escaped, but the water was immediately sucked into the chest by the atmospheric pressure.

Experiment II.—Artificial respiration was produced in the body of the subject of Case II., by inflating the lungs through the trachea, and expelling the air by pressure on the abdomen. At each inflation, a most distinct, clear and abundant metallic tinkling was produced, accompanied with more or less amphoric sound, and could be sustained ad libitum by repeating the inflation. The sound was recognised by several of the medical gentlemen attached to the hospital,* as being the same which had existed during the patient's life.

This experiment was repeated in the examination of the body of the patient in Case III. It produced amphoric sound, but no tinkling. The latter symptom, it will be observed, was but feebly perceptible in examinations during life.

Experiment III. Through an aperture in the anterior part of the chest in the subject of Case II., a catheter was introduced and air blown through it into the cavity of the left pleura. While the end of the catheter was above the level of the fluid, a strong amphoric buzzing was communicated to the ear of an observer in contact with the chest. But when the end of the instrument was pushed below the surface of the liquid, and the latter made to bubble by continuing the inflation, an exquisite metallic tinkling was heard at the explosion of each bubble, resembling, as it had done in life, the sound of a little bell or musical wire. In the subject of Case III. this experiment was repeated, and varied by pouring into the chest different quantities of water. When a few ounces only were present, metallic tinkling was uniformly produced, but when two quarts or more were introduced, a bubbling only was heard, without metallic resonance. Similar results were also obtained by pouring a small stream, or letting fall drops of water from above, upon the liquid in the chest.

Experiment IV. Succussion and percussion were both found to produce the same metallic sounds in the dead body as during life in Case II. Metallic sounds elicited by percussion somewhat resemble those occasionally yielded by the heart, and, as has been observed by Bouillaud, these may be imitated by percussing the back of the hand pressed closely upon the ear, or

* Among the gentlemen present were Drs. Hale, Strong, Bowditch and Sargent.

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by closing both ears with the palms of the hands, and walking on a carpet in a still room.

Experiment V. In the body of a person recently dead from accident, having no pneumothorax, a repetition was made of several of the foregoing trials. Air and water were forced into the chest, the former so as to distend the cavity and render percussion quite resonant. Ebullition of the fluid was then produced by blowing through a tube inserted between the ribs and pushed below the surface. The only result was a bubbling noise, having not the slightest metallic character. It will be observed that this was nearly a repetition of Magendie's experiment, and it probably failed to produce metallic sound for the same reason as in that case, viz. that the patient was not pneumothoracic.

Experiment VI. A bladder, and afterwards a stomach, each containing a few ounces of water, were inflated until thoroughly distended. Whenever the inflating tube was pushed below the surface of the liquid, and the inflation continued so as to produce bubbles, a sharp tinkling was heard upon the explosion of every bubble, by the ear applied as in ausculting to the outside of the bladder. In this experiment the sound becomes more exquisitely metallic, in proportion as the tension of the bladder is increased by farther inflation. Succussion of the bladder produces a similar effect. It is necessary that a recent bladder should be used, the texture and elasticity of which are not altered by drying. When the orifice of the tube is above the surface of the water, also when no water is present in the bladder, an intense amphoric sound is produced during inflation; and if saliva or other liquid, in small quantities, is blown through the inflating tube, a more feeble, or *submetallic* tinkling is produced.

From the foregoing experiments and cases, we may infer that the following agencies are concerned in producing metallic sounds of the chest.

1. There must be a cavity, the walls of which are preternaturally susceptible of vibration. This takes place when the pleura is pathologically distended, so as to overcome the obtuse or muffling effect of the contiguous soft organs, such as the lung, diaphragm and intercostal muscles. Some time is probably necessary to prepare the parts for this pathological resonance, since it fails to appear *post mortem* in healthy chests submitted to experiment. It should be added that when metallic sounds appear in simple phthisis, there are cavities of the lungs, the walls of which are in a state of tubercular induration.

2. The immediate or exciting cause of metallic tinkling, is a forcible or sudden disturbance of the liquid in a vibrating cavity like that described. The explosion of bubbles of air from beneath the surface of the liquid, appears to be the most common cause of such a disturbance; but it may also take place when a part of the liquid is thrown upward in the act of cough-

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ing and falls back upon the remainder. The same occurs in succussion of the chest.

3. The vibrations which yield metallic tinkling are transmitted from the liquid to the solid parietes, and thence directly to the ear, without any necessary agency of an echo, or reverberation of air in the cavity. This is shown particularly by the experiment of the bowl, page 48.

4. A minor, or *submetallic* tinkling, having no musical resonance, may be produced by slight impulses given to the air in the cavity, such as the breaking of bubbles of mucus at orifices above the surface of the liquid.

5. Amphoric resonance is produced by reverberations of the air in a vibrating cavity, without sonific impulse of the liquid. The same is true of metallic modifications of the voice, and of the cough when there is no tinkling. Metallic percussion seems also to depend upon the vibrations of air independently of liquid, and may be produced in some other cases when we strike upon a tense cavity in which a certain quantity of air is confined.

Boston, Sept. 1838.

ART. VI. *Surgical Clinic.* By N. R. SMITH, M.D., Professor of the Theory and Practice of Medicine, in Transylvania University.

CASE I. *Extirpation of the Parotid Gland.*—August 21, 1835, my friend, Dr. T. E. Bond, Sen., requested me to examine a tumor on the face of Miss Bryan, the daughter of Charles Bryan of Baltimore county. It was located between the left ear and the angle of the jaw, in the precise situation of the parotid gland. It presented an abrupt eminence, something in form like a pointing phlegmon—its base not broad. The tumour was hard, occasionally affected with lancinating pains, and tender to the touch. It very much disfigured the patient, and was stated to be increasing in a degree which caused much anxiety.

Both myself and Dr. Bond were inclined to regard the tumour as one which had originated in a lymphatic ganglion lying on the parotid, although we could not well define its base and extent in the direction of the zygomatic fossa. The history of the case in our view justified an operation for the removal of the part diseased, and I accordingly undertook it.

In the presence of several of my pupils, August 25, 1836, I commenced the operation by making a vertical incision from the zygoma to the angle of the jaw; and, deepening it, laid bare the external aspect of the tumour. On endeavouring to define its lateral limits with the knife, I soon discovered that I had to deal with the entire parotid, and proceeded accordingly. The disease affecting the organ had, in regard to consistence and form, distinguished itself from the surrounding parts. It was much more globular than the

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healthy gland—had a more distinct envelop of cellular tissue—and had receded in a degree from its confined situation. Penetrating the posterior part of the tumour near its surface, I soon traced out the facial nerve (portio dura) and separated it from the tumour to a considerable extent. I then doubted whether to attempt to disengage the tumour from beneath the nerve, or to divide the latter. Anticipating great embarrassment in the execution of the first plan, and fearing that serious irritation would be necessarily inflicted upon the nerve, I at once divided it. Paralysis of the muscles of the face on that side instantly resulted.

I then cautiously proceeded with the dissection of the tumour. Penetrating between its diseased lobules on every side were occasional bands of cellular tissue. These I divided with great caution, as I expected to find some of them involving the branches of the external carotid, which emanate from the parotid. Thrusting the index of my left hand beneath the tumour, I made them successively turn over its extremity; and carefully feeling for pulsation, I effected their division, sometimes with the knife, but more generally with a very narrow probe-pointed bistoury. When I felt pulsation I endeavoured to effect the laceration of the band with the finger, or the handle of a scalpel. Thus I proceeded till I had insulated the tumour with the exception of a single band attaching the upper and posterior part of the diseased mass to the deep temporal region. Occasionally there had sprung a small artery, but not furnishing sufficient blood to embarrass the operation. I now divided the last band which attached the tumour, and a single artery sprung with considerable impetuosity. This I secured without difficulty with the tenaculum. Had I felt any considerable pulsation in it I should have included the whole band in a ligature before effecting its separation.

The tumour being now removed, I explored the cavity from which it had been taken. This extended quite to the styloid process; and the muscles arising from that point were seen with perfect distinctness. Not a vestige of any thing presenting the appearance of the parotid gland could be seen in the space usually occupied by it. Probably, however, that small process of the gland which extends forward on the cheek, termed socia parotidis, was left; but in the incision along the anterior border of the tumour I did not distinguish it or the duct of Steno. The tumour is in my possession, and is of the size of a very large hickory nut.

The patient bore the operation with much fortitude. The wound was dressed lightly with lint and bandage. Inflammation to some extent arose, and some embarrassment of deglutition and respiration resulted. A common cataplasm was applied; and, on the occurrence of suppuration the unpleasant symptoms abated. Cicatrization was effected in a few days, and all morbid sufferance ceased. The face, however, remained paralysed; and the eye suffered in some degree from the inability of the patient to close it. I saw this young lady some months after her recovery; and, at that time, the

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cicatrix remained healthy, and the paralysis of the face had decidedly diminished.

The extirpation of the gland in this case I accomplished with much greater ease than I had expected. The small amount of hæmorrhage cannot fail to strike the reader with some surprise. It is to be accounted for, in my opinion, by presuming the obliteration of many of the vessels by the enlargement and morbid hardness of the gland; also by its displacement, in consequence of which traction was made on the vessels issuing from it.

This case furnishes facts which will aid to reconcile the opinions of anatomists and surgeons relative to the feasibility of the extirpation of this gland. The former, even at the present day, observing the extreme difficulty of dissecting the healthy gland, often declare its removal impossible. Surgeons, however, report numerous cases in which the operation has been unquestionably performed. I have seen the operation performed with success by Professor M'Clellan of Philadelphia; and in that case also the hæmorrhage was trifling, and from but a single vessel. The gland has also been removed by the late Professor Davidge of this city—by the late Professor N. Smith—by Professor Dudley, and, I believe, by several others in this country, as well as by numerous surgeons abroad.

The feasibility of the operation in these cases is, in my opinion, to be explained by the facts furnished in the above instance. The tumor in its growth had assumed a harder consistence than natural, without having imparted disease to the surrounding parts. It was therefore better defined than the healthy organ. It had also become spheroidal; and, from its size and hardness had necessarily receded from its confined situation. Its extirpation was therefore undoubtedly far easier than would be that of a healthy gland; and, because of the obliteration of the vessels from causes named above, attended with far less hæmorrhage.

Case II. *Division of the Tendo Achillis for the cure of Club Foot.*—March 21, 1835, I was called to the infant child of the Reverend Mr. Hamner of this city. The little patient, then but three weeks of age, was born with the distortion of the left foot, termed "club-foot;" or in this instance with more propriety termed "pes equina," or "horse-foot." The inclination of the foot inward was very strong, and with difficulty resisted by the hand. When it was firmly seized and turned outwards, so as in some measure to assume its natural attitude, the tendo Achillis became exceedingly tense; and, in spite of every effort to prevent it, the foot would become extended on the leg by the resistance of the tendon, so that the instep was nearly in a line with the shin. It could be flexed, however, in a greater degree when the leg was flexed on the thigh, showing clearly that there existed nothing to hinder flexion but the resistance of the tendon.

The case had been previously seen by my friend Dr. M. Baer, who gave some judicious directions in regard to the mechanical management of the

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case. On its coming into my hands I also resorted to the usual mechanism employed in such cases. I directed persevering efforts to be made with the hand to flex the foot and thus elongate the tendon, and also to abduct it. I even made a plaster cast of the limb, holding it as firmly as possible in a natural attitude; and, on the cast thus procured, shaped a splint, which was worn for a considerable time. I had about this time seen, in a number of Professor Gedding's Archives, an account of Stromeyer's operation of dividing the tendo Achillis, and suggested the operation to the parents; but as the expedient was new, and had never then been performed in this country, it was determined not to resort to it till other means failed.

Those means, however, did fail, and I declared for the operation. The father being a gentleman of superior intelligence and decision, I made him fully acquainted with my views. On carefully examining the member he became satisfied that the resistance to flexion and permanent abduction of the foot was wholly on the part of the tendon, and promptly acquiesced in the proposition.

I performed the operation, August 3, 1835, in a method I believe somewhat different from the mode usually adopted. The leg being firmly held, the foot was strongly abducted and flexed so as to render the tendon very tense. I then, with my finger and thumb of the left hand, rendered the integuments tense over the tendon, and with a scalpel divided them down to the tendon, and to the extent of an inch. One stroke of the knife completely exposed the silvery surface of the tendon; and then, drawing the integuments firmly to each side, I easily insinuated a small director beneath it, and with the greatest care carried it through. Placing the point of the knife in the groove of the director, the edge presenting upward, I caused it to glide along the groove, and divided the tendon at one stroke. Its extremities sprung apart like those of a divided bowstring, and the foot, instantly yielding to the force which was being exercised upon it, became flexed at once. Nor did it require now the least force to maintain the abduction.

I now immediately closed the wound with adhesive strips and a roller, using no other support whatever, not doubting that continuity would be established notwithstanding some motion, though Stromeyer and others have deemed it necessary to use a splint or boot.

I dressed the wound on the fourth day, and found that union had taken place by the first intention. The child scarcely suffered a moment's pain after the operation—not even during the dressings; and the parts were soon restored to a state of soundness. I now found that the tendons which antagonised the tendo Achillis were rapidly restoring the rectitude of the foot. I therefore left the case entirely to the natural action of the muscles. When the child began to walk, which she did at the usual period, I had the satisfaction to see her tread fairly and firmly on the sole, there being no appearance of deformity except that the foot was a little shorter than the other, and that there was a little inclination of the toe inward. To correct this last,

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I subsequently caused the patient to wear a spring boot. The following note, which I have this day received from my friend Mr. Hamner, will show the present condition of the foot.

Dr. N. R. Smith. My dear sir—In reply to your note relative to the operation on my little daughter three years since, it affords me great pleasure to state that the benefit derived from the operation is complete. She walks without the slightest appearance of a limp, and seems to have equal strength and agility in the limb on which the operation was performed as in the other. The only indication which appears, of any thing like malposition having afflicted her, is a very slight inclination of the toes inward, which, however, does not inconvenience her at all.

Yours, with a deep sense of indebtedness to your skill and kindness,

JAMES G. HAMNER.

Baltimore, September 12th, 1838.

I have thus long delayed reporting the above case in order that its result might be fully determined. I have since operated in another case which is doing well, and which I shall report at a future period.

Case III. *Paracentesis Vesicæ for relief of suppression caused by rupture of the Urethra.* November 27, 1837, I was requested by my friend, Dr. M. Baer, to see the child of Mrs. Hardy, of Pratt street, a lad of 7 years. He had that day fallen astride upon the margin of an open barrel, and had received a severe contusion in the perinæum by the sharp margin of the staves. The injury was directly beneath the arch of the pubis, and, consequently, upon that part of the urethra where the membranous portion penetrates the bulb. The skin had suffered no wound, but the extravasation and hard tumefaction which had promptly resulted, gave evidence that parts beneath the integuments had been divided. A more distressing and conclusive proof of this had occurred soon after the injury;—complete suppression of urine had resulted, though the desire to void it was urgent, and the efforts frequently repeated. Dr. Baer first saw the case, not long after the occurrence of the accident, and attempted to pass the catheter. The nature of the injury, however, had rendered his efforts unavailing. On my being called, I also attempted the introduction of a catheter; but, although I used instruments varying in size and form, and practised gently every variety of manipulation which promised success, I failed to reach the bladder. Blood flowed from the instrument whenever it reached the part, and its point appeared then to be engaged in a lacerated wound. The condition of things was plain enough;—the urethra had been divided—blood had accumulated in the wound, and this had been followed by urine, which, being injected with some force into the parts, had been imbibed by the cellular tissue.

As but a few hours had elapsed from the time of the injury, and as the bladder was not suffering a severe degree of distension, we resolved to delay further manual interference, and resort to measures calculated to obviate

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irritation and inflammation. Venesection was performed, an aperient and warm fomentation directed, and, at night, an anodyne.

We saw the patient next morning, and rather unexpectedly found him partially relieved. Urine had been, from time to time, voided in small quantities and slowly; the bladder was rather less distended than the evening before, and the febrile excitement was not excessive. We, therefore, still delayed, after having made another ineffectual attempt to pass the catheter.

The next day, 29th, owing to indisposition, I did not see the patient, and the morning following Dr. Baer called to inform me that the suppression had become complete, and that the symptoms had assumed so urgent a character as to demand immediate manual interference. I visited him immediately, but Dr. B. being occupied with an important engagement, could not accompany me. I found the patient in a most perilous and distressing extremity. The tumid bladder was distinctly felt above the pubes, and was hard; there existed high febrile excitement and extreme restlessness, and, at intervals of fifteen or twenty minutes, violent spasms of the bladder and abdominal muscles occurred, during which there was an agony of suffering. On introducing the finger into the rectum, I distinctly felt the bas-fond of the bladder pressing firmly upon that intestine and downward upon the perinæum. The case had now manifestly reached a point which brooked no further delay, and I again unsuccessfully attempted the passage of a catheter.

There was now no alternative but an operation; but I hesitated for a moment whether to cut open the lacerated urethra, search for the wound in that duct, and thus introduce the catheter, or to perform the operation of tapping the bladder without regard to the injured urethra. Had there been any considerable tumor in the perinæum and scrotum, indicating the lodgement there of blood and urine in quantity, and that giving rise to high inflammation, I should have incised the part immediately. But the tumor was circumscribed and small, nor was any fluctuation to be discovered; no circumstance, indeed, which demanded an incision but the suppression of urine, and this was in part occasioned by the irritation of the retaining muscles. The facility with which I felt the tumor of the bladder from the rectum pressing into the perinæum, and the small depth of parts in that region in a boy of that age, suggested the tapping of the bladder through that part, a method which in all cases is preferred by some eminent surgeons. The operation of cutting for the urethra would have been a much more difficult process, and would have required assistance which I could not at that moment command. I was so apprehensive of mischief from further delay that I resolved to proceed at once, with no other aid but that of the mother.

I placed the patient on his back upon the margin of the bed; his mother, a woman of resolution, held him firmly; I introduced the left index into the rectum, and, seizing a small, straight bistoury, I pierced the integuments at the centre of the line in which the incision is made in lithotomy. I then,

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giving the instrument a general guidance with the finger in the rectum, struck for the angular space between the crus penis and bulb of the urethra, and conveying the bistoury along the left side of the membranous portion of the urethra, endeavored to strike the bladder just exterior to the prostate gland. I then withdrew the bistoury and immediately conveyed along the wound a small gum-elastic catheter into the bladder. There instantly occurred a free gush of urine from the catheter, and it continued to flow till the tumor of the bladder subsided. The sufferings of the patient immediately ceased. Having ascertained that the instrument was so firmly embraced in the wound as that there was no danger of its escape, I left him for the night.

The next morning Dr. Baer saw him with me. We found him comparatively comfortable—urine flowed freely by the catheter—the local irritation and constitutional symptoms much abated—in all respects indeed doing well.

The next day, December 1st, his condition was the same;—also on the following day. December 3d, the local swelling and tenderness having much abated, I again gently attempted the passage of a silver catheter, and fortunately succeeded. I presume that, during the perfect repose which the injured urethra enjoyed during the presence of the catheter in the wound, absorption of the effused fluids had taken place, and the continuity of the parts had been partially restored. I now withdrew the catheter from the wound, and secured with tapes that which I had introduced along the urethra.

During the following night the patient was exceedingly restless; rendered so partly, perhaps, by the presence of the silver catheter in the bladder. Toward morning, though carefully watched, he seized the instrument and disengaged it from the bladder. After the lapse of a little time he made an ineffectual effort to pass water, and immediately all the unpleasant symptoms of suppression returned. He suffered the most urgent desire to void urine, together with spasmodic throes, for three or four hours, when suddenly the flow by the urethra was restored. I did not see him till morning, not having been informed of his condition, but I then found him entirely relieved. He continued from this time to void his urine with but little impediment. The wound in the perinæum healed promptly, and in a few days the patient was restored to health.

Appended to a case of "Laceration of the Urethra," published in No. XXXVIII of this Journal, are several interesting cases of laceration of the urethra, adduced by the editor from various sources, for the purpose of illustrating the treatment of such injuries. In those instances incisions were with great propriety made into the injured parts, the operator having a double object in view—the evacuation of extravasated fluids, and the relief of suppression. But the circumstances in the case which I have related were somewhat different, and, in my opinion, justify a different mode of practice. The editor justly remarks in the article alluded to, that the operation of incising the injured parts, "is far preferable to the puncture of the bladder either

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above the pubis or from the rectum." But is it preferable in a child, and in a case unaccompanied with much effusion, to the puncture of the bladder through the perinæum? The parts to be traversed by the knife are not voluminous in a boy, nor are they so vascular and sensitive as in the adult; the instrument is easily guided by the finger in the rectum; and the bladder, when thus distended, is so fair an object, and so distinctly felt, that one acquainted with the anatomy of the parts can scarcely fail to attain it without inflicting injury upon the surrounding parts. Under ordinary circumstances, however, instead of transfixing all the parts at once, after the method of Foubert, I should first make an external incision as for lithotomy, and complete the operation with the trochar, as the process is modified by Sabatier.

The objections which Velpeau makes to this operation on the adult, viz., that sometimes the ureter or seminal vesicle may be hurt—sometimes the instrument miss the bladder and penetrate forward between it and the pubes, or posteriorly into the cul-de-sac of the peritoneum, certainly do not obtain with equal force in operating on boys. The volume of the parts to be traversed is relatively far less, and the prostate and seminal vesicle are relatively less developed. I cheerfully admit, however, that in many cases of even young subjects, the operation of cutting for and piercing the urethra anterior to the prostate, the operation which Velpeau and Sir A. Cooper would substitute whenever practicable, will often be preferable to that of tapping. But in all cases in which the puncture of the bladder becomes necessary in young subjects, I should decidedly prefer the puncture through the perinæum to that above the pubes, or that from the rectum.

Case IV. *Amputation of the Thigh during Progressive Gangrene, resulting from Fracture and the Pressure of a Displaced Fragment of the Femur on the great artery and vein.*—August 31, 1837. I was called by an intelligent medical friend to see, with him and another medical attendant, in Pratt street near Hanover, a case of recent fracture of the thigh, in which gangrene of the leg had supervened. The patient was a youth 17 years of age, of good constitution, but probably, at the time of the injury, somewhat under the influence of malaria, as he came from a sickly district on the eastern shore of Maryland. Being on board a bay craft he suffered a fracture of the leg near the knee, by the fall of a bag of merchandize which was being removed from the vessel.

I saw him on the fifth day from that of the injury. The limb was then reposing on pillows, in the semiflexed position, not having been placed in splints. The whole foot and leg, to within three inches of the knee, were in a state of complete mortification, the parts being tumid, crepitous when pressed, covered with dark vesications, cold and completely insensible. A belt of gangrenous inflammation existed below the knee; but nothing like a line of demarkation existed between the dead and living parts. There was considerable tumefaction at the place of fracture; but the action above the knee was neither excessive nor unhealthy. His pulse was firm and good,

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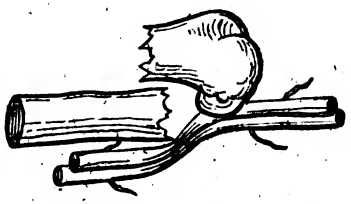
(about 100), the nervous system but little disturbed, and the stomach performing its offices as well as in ordinary cases of fracture.

Taking into consideration the condition of the limb above the knee, and the favourable state of the system, we came to the conclusion that the mortification must have resulted from some local cause; probably some lesion inflicted upon the great vessels and nerve, and although gangrene was still progressing, we unanimously resolved that amputation, immediately above the fracture, should be performed. I amputated the limb within two hours after I first saw him, and the operation was endured by the patient with fortitude, and with but little prostration. The stump was carefully closed in a manner to favour union by the first intention. Further history of the case is unnecessary, except to say that healthy action was instituted in the stump, and the patient had a rapid recovery.

But that which was chiefly interesting in the case, was the condition of the parts at the place of fracture, ascertained by dissection. The member having been disturbed as little as possible, I made a vertical incision above the patella, down upon the bone, and quickly discovered that the fracture was within about two inches and a quarter of the extremity of the bone, and that it was perfectly transverse. It was also seen, that the upper fragment was thrust into the ham, and that it was lodged directly behind the lower fragment, overlapping it about three-fourths of an inch.

Reversing the member, we carefully exposed the soft parts in the popliteal region. Here the source of mischief was speedily revealed. In the midst of effused blood and serum were found the femoral artery and vein thrust backward, and tensely drawn across the sharp posterior margin of the superior fragment, in such a manner that it was perfectly obvious that the circulation in both vessels must have been completely interrupted. It will be remembered, that the bone at this place is large, as it is there expanding to form the condyles. The posterior surface is broad and flat, and consequently the margin, over which the vessels were drawn, was long and straight. The accompanying sketch will illustrate the relations of the parts. The preparation I have preserved.



There are surgeons of eminence who still advocate the practice of delaying to reduce fractures till local irritation has abated. Such was the practice inculcated by the late Professor of Anatomy in the University of Maryland, but the facts furnished by the above case, will strongly gainsay such a precept.

Baltimore, Sept. 1838.

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ART. VII. *Further Remarks on the Action of Presence.* By JOHN W. DRAPER, M. D., Professor of Chemistry, and Physiology, Hampden Sydney College, Virginia.

1. In the papers, which I have communicated to this Journal during the past year, I have endeavored to unfold those parts of chemistry and its collateral sciences, which seem to have a bearing on the phenomena of life. Returning now to the study of the action of presence, it will be my object to examine successively the different cases of it, previous to entering on a detailed experimental investigation of the leading facts.

2. Some physicians, not well informed of the processes of philosophical reasoning, take umbrage at any attempt to bring physiology under the dominion of physical science. As they regard life, as a principle *sui generis*, and give to it that same kind of existence, that we impute to light, heat, or electricity, they do not hesitate to assign to it properties and modes of action, often irreconcileable with themselves, and marvellous in the extreme. As if organic structures showed no adaptation of *the means* to *the end*, and no relation of *cause* and *effect;* the aplanatic adjustment of the eyeball; the configuration of the bony skeleton, cast with mathematical fidelity to sustain in one part the effect of steady pressures without change, or in another, to encounter without peril a sudden shock; the cellular structure of the lungs, and the thin membrane which parts the blood from the air, these and a thousand other things are lost upon them.

3. There are others, who impute every phenomenon of vital action to a *nervous* fluid, the machinery of which they pretend to explain. Such functions as respiration and secretion, as well as the more exalted functions, which place us in relation with the external world, are intimately connected with this power. Each gland in the body and each tissue, being connected with the system along which this fluid moves, receives from it an impress which fits it for the performance of its accustomed duty. Thin nervous webs ramify in every direction, being the channels along which the dynamic fluid passes. In the lungs, it accomplishes the arterialization of the blood; in the kidneys it keeps up the acidifying process, which ends in the elimination of acids of sulphur, phosphorus, and nitrogen; beyond this, by freely passing from part to part, it maintains the sympathies that ought to exist in complex organisations.

4. As is the case in most medical theories, a wrong process of reasoning is here adopted. The existence of an agent is assumed, and effects are incorrectly adapted to it. The Baconian philosophy is here inverted, with a success that is no unusual concomitant, of the synthesis of causes.

5. That a powerful and active agent, of some kind, resides in th nervous system, there is little doubt; that it exerts a direct control over those chemical affinities, which the particles of an organic body would hasten to

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satisfy, is also unquestionable; but that it is the sole and entire cause of the diversified effects of vitality, has never been proved. How is it, that from the deep sleep of winter, trees and plants awake at the coming of spring, and put forth their leaves and their flowers, and then sink again into their annual slumber? They have no nervous expansions, no sentient cords, no ganglionic knots. Yet, many of the secretions eliminated by animal tissues, are also eliminated in the nerveless glands; the wax that is evolved by the ceruminous glands of the ear, does not greatly differ from that which enters into the composition of the pollen of flowers; the sugar, that is secreted by the diabetic kidney, has its analogue in the sugar of grapes, and may even be made artificially, by the slow action of dilute sulphuric acid, at a certain temperature, on a variety of different bodies. It is true, that the process of arterialisation may depend on the ramifications of the par vagum, interlacing among the bronchial cells; but is not a like process accomplished in the leaves of plants, without the intervention of any nerve of respiration? Without a motory or a sentient apparatus are they not equally sensible of the deleterious effects of narcotic poisons, and die when exposed to an atmosphere of irrespirable gas?

6. Yet we must not infer because the botanist has failed to detect nerves in these bodies, that they accomplish all their different changes, evolve their varied tints, and form their perfumes, by processes which simply depend on the conditions of their organic structure. That it is in virtue of the number, shape, or arrangement, of the pores of their leaves, or some inherent quality in their *chromule verte* that they are possessed of the attribute of breathing, an inverted breathing which exactly compensates in its results, for the breathing of animals, and maintains the constitution of the atmosphere at all times the same. In animals, the nervous influence emanating from within, produces through the agency of the phrenic nerve, the bellows motion of the respiratory machine, and then the chemical change which has to occur, *may* be brought about by the action of the par vagum; but in a plant the passing wind and the trembling of the leaf, perpetually expose fresh surfaces to the air, and the rays of the sun impinging on the porous organ, give it that chemical relation that enables it to discharge the function intended.

7. Does then the sunlight act, as it were, as an external nervous agent in plants? Is it for this, that in tropical regions under a vertical ray, the most fragrant perfumes are formed, and vegetation exists in the utmost luxuriancy? In the types of animals and plants, respectively, there seems to be an inverted location of the organs, the lacteals of the former originating within, and the roots of the latter without; the respiratory mechanism of the one closed up, and the other freely exposed to the air; their nervous systems may follow the same law, and an irritant be supplied to the one from within, whilst to the other it comes from without.

8. To this it may be objected, that, though the effects produced by the im-

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pinging of the solar ray upon a leaf, and the nervous influence exerted upon the lung, bear a striking analogy to each other, yet the agents themselves have nothing in common. It has been remarked, heretofore in these papers, that we have an exact knowledge, of the nature of the fluid, that passes along some systems of the nerves. The defensive organ of the torpedo, and some other fishes, which owes its power unquestionably to a large supply of a remarkable class of nerves, reveals to us the circumstance that along some systems, the electric fluid freely passes. Torpedinal electricity is evolved, in the broken circuit, in the form of a spark which passes with an audible report; when made to move along a metallic helix, it magnetises an included needle of steel, it causes the usual disturbance of the galvanometer, and hence exerts the tangential electro-magnetic force, it gives rise to the Faradian currents, under the proper conditions, and exhibits attractions and repulsions on suspended gold leaves. The origin of these electrical currents, can be traced immediately to a certain part of the brain, for its first lobes may be destroyed without the discharge disappearing, and the same occurs with the third, but if these be left whole and the fourth be destroyed, then the animal ceases to have any more electrical power. Now the electrical organ is also the encephalic organ of respiration, and on injuring it a corresponding injury to the opercula of one or both sides is the result. It also appears, that the amount of electricity evolved, bears some relation to the amount of gas consumed in respiration. (Matteucci, *Compte Rendus*, December, 1837.)

9. An opinion has been expressed, in the last Number of this Journal, that there is not any known instance of change of chemical composition being brought about by the simple agency of mechanical structure; in other words, that tissues and glands, do not act as mere strainers or sieves, evolving new substances by any peculiarity in the adaptation of their parts. It might from hence be supposed, that we should be reduced to the necessity of regarding nervous influence, as the prime mover of all the functions of organic life, but if in vegetables the light of the sun or the impress of heat, does not supply the place of this obscure power, great difficulty would arise in understanding how the various products, evolved by some kinds of chemical action, in the vegetable kingdom, originate. No nervous system is present, and if no external agent be supposed to act, we are reduced to the last hypothesis, that the changes occurring under these conditions, are the result of a catalytic action—an action of presence.

10. Besides the four leading elements, oxygen, hydrogen, nitrogen and carbon, which form the basis of most living bodies, and are their chief ingredients, minute portions of other elementary bodies are occasionally present, such as silica, iron, lime, potash, &c. Until lately, these have been looked upon as extraneous matters, often existing in plants from incompetency of the spongioles, or absorbing apparatus to exclude them in the process of absorption. Accurate researches have however proved, that a great degree

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of regularity is observed in the deposition of these materials, and that they constitute as it were a true skeleton; thus, lime forms the skeleton of the calyx of the mallow, and one of the salts of potash the skeleton of the petals of the rose. The term skeleton is not here used in its anatomical sense, as implying a rigid basis, upon which a soft structure is raised, the introduction of a saline material of the character of the potash salts, not possessing that degree of rigidity necessary to a mechanical frame work, would obviously be inapplicable; nor would the petals of the rose or geranium receive any support from a foundation of this sort. Other objects must therefore be inferred for the elaborate introduction of these bodies, and their regular location in specific parts of plants.

11. It is remarkable, what powerful physical forces are called into action, by the minutest portion of elementary atoms. Quicksilver, can have its electrical relations entirely reversed, by the admixture of less than a millionth part of its weight, of the more energetic electropositive metals. In this way, a force may be generated, vastly more intense than that exercised by the whole mass of the earth, under the form of gravitation, and motions executed, which demand the most decided powers for their accomplishment. It happens, that several of those metals and compounds, which are already recognised as developing these extraordinary agencies, are also detected forming what is called the skeleton of plants. It becomes, therefore, highly probable, that the functions they discharge, are of that kind, now distinguished by chemists as actions of presence.

12. I propose now to go into a review of the different cases of this kind of action, which have been reported, premising that in many of the cases referred to, we may be able hereafter to impute the result to more ordinary agents.

(*a*) The most prominent of these phenomena, are produced by the action of metals, either in the state of powder, wire, or foil. It seems necessary that the surface should be absolutely clean and metallic, (that is, not covered with a film of oxide:) the products of action being very diversified, often forming a suite of compounds, identical to those of the organic kingdom, the change being accompanied with thermal changes, which are sometimes so energetic, as to exhibit a true combustion, and a vivid flame; and sometimes so moderated, that only a pale and lambent light appears, as is the case, in the conversion of the different compounds of etherine, into more highly oxydized bodies. The first example of this description, was given by Sir H. Davy, who found in his researches on the nature of flame, that if a coil of platina wire be placed in a vessel containing ether, the atmosphere having free ingress, at a temperature much below visible redness, the vapor rising from the ether had its constitution charged, in passing by the wire; a pale blue flame perceptible in the dark, announcing the progress of oxydation. And the temperature of the wire rapidly rose, it soon became red and finally white hot.

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(*b*) It was next found that platina when in the state of a very fine powder, if moistened with alcohol containing water, would cause those compounds to unite, in such a way as to generate acetic acid. The metal itself in no wise being affected.

(*c*) The same metal, when in the state of a sponge, was shown by Dobereiner, to have the power of firing at common temperatures, and even at the freezing point, a stream of hydrogen gas directed upon it; causing the instantaneous production of water, by the union of its gaseous elements. It has been more recently discovered, that a granular or spongy state, is not essential to this action, pieces of platina foil, provided they be perfectly clean, and also pieces of wire of considerable dimensions, will slowly promote the union of oxygen, and hydrogen. It does not, therefore, depend on the absorbing or condensing action of a porous mass, as the earlier experimenters imagined. Nor is the influence of this metal only confined to these two gases, several others are caused to unite by it, formic acid is converted into carbonic acid, and under its agency metallic osmium combines with oxygen, producing osmic acid. Even if the surface of the metal should be moist, the usual effect is produced, though it requires a longer period of time for its completion. An exceedingly small quantity of platinum, will in this way condense an unlimited amount of the mixed gases. Dobereiner found, that the thinnest film precipitated on a glass tube, from a solution of chloride of platinum by means of a rod of zinc, would cause the oxydation of hydrogen placed in it: but that some liquids, as nitric acid and ammonia, would totally hinder this action.

(*d*) It is an observation of Dulong and Thenard, that this property is by no means peculiar to platinum, but that gold, silver, glass, &c., at certain temperatures, will do the same thing. In a paper published by Mr. Miller, in the Annals of Philosophy; a paper, which seems to have been strangely overlooked, some beautiful results of this kind are given. Charcoal, made by igniting bones, or by the destructive distillation of gum arabic, tragacanth, or myrrh, would replace the coil of wire in Davy's experiment, and give rise to the acidification of ether. The different metals, palladium, gold, silver, copper, iron, steel, lead, brass, and even watch spring, were found to be endued with a like power, a lambent blue flame playing round them. The tip of a glass rod, being warmed and then held over ether, emits from its whole surface the blue flame, and acetic acid is formed in abundance. A fragment of lime used in the manner described by Mr. Miller, gives rise as I have proved, to an extremely beautiful experiment; the portions of it next to the ether emit a pale white phosphorescence. And these results are not obtained by employing ether, or alcohol only; camphor, nitrous ether, benzoic acid, oil of turpentine, and the essential oils of amber, aniseed, carraway, cinnamon, cloves, juniper, lavender, origánum, nutmeg, savine, rosemary, and peppermint, and gaseous mixtures of hydrogen, or carburetted

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toes in the lower, or the fingers in the upper extremity, is to be carefully and firmly applied as high up as the injury, where it is made to secure a graduated compress, extending a short distance above and below the wound. An inflexible splint, bound to the limb by a second roller, completes the apparatus. Care is to be taken to place the injured extremity in the best position, and if serious bleeding is apprehended, the patient should be carefully watched. This plan of treatment should be persevered in for three or four weeks, and frequently for a longer period. When it is deemed advisable to remove all or a portion of the dressings, it should be done with the greatest care, and without the slightest motion of the injured part. The first movements of this part should be of the gentlest character, and some support should, for a short period, be given to the injured vessel.

If the dressings are well applied, and the limb kept in the proper position, a moderate degree of pressure is generally sufficient to control the hemorrhage—often without materially impeding the circulation in the artery.

Lymph is always effused from the cut edges and coats of the vessel, and if sufficient time is allowed to elapse for its consolidation, we have every reason to hope for a favourable termination of the case. We do not recollect a single unsuccessful case, where this plan of treatment has been faithfully carried out in all its details.

Cases I. and III.—wounds of the radial and femoral arteries—were punctures in which very little if any impediment to the flow of blood was produced by their cure. Cases II. and V. were examples of perfect division, and the cure was effected by adhesion of the sides of the vessel. Case IV. appears to have been of the same character, the artery below being filled by the anastomotic branches. In cases III. and IV., the ligature would have been immediately applied, but from the fact that the hemorrhage was perfectly controled by the means first resorted to, and the treatment subsequently instituted rendered the operation unnecessary. The subject of the first and second cases, certainly exposed himself to danger by so early a return to his occupation, which was done entirely on his own responsibility.

These cases, then, are facts, illustrating the importance of careful dressings, and going to show that under favourable circumstances, wounds, even of large arteries, may be cured by compression. The particular cases in which it ought to be resorted to, must, after all, be very much left to the tact and good sense of the surgeon, and where doubts exist, it will always be safer to cut down to the vessel, and employ the ligature.

Philadelphia, Dec. 7th, 1838.

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ART. IV. *Reports of cases treated in the Baltimore Alms-House Hospital.* By SAMUEL ANNAN, M. D., Senior Physician to the Institution.

THE wards assigned to the sick women and children came under my management, in the beginning of May; since which time, a considerable variety of diseases has been witnessed; the more important features of which, it is the design of this report to exhibit. Brevity will be studied, as far as it may be thought compatible with clearness and accuracy.

In the early part of May, when the change was making from winter to summer clothing, ophthalmia appeared, and continued to exist, until finally banished by the warm weather of June. The catarrhal and scrofulous were the two most common forms. The former, conjunctivitis puro-mucosa atmospherica, presented all the usual symptoms, of general redness of the eye-lids, and white of the eye; the vessels on the latter arranged in the form of a net work; increased secretion of mucus; with a feeling of roughness, and of sand under the upper eye-lid.

The greater number of these cases were speedily cured by purging, frequent bathing of the eye with warm water, and protecting it from the light by a green shade. In a few instances the temples were cupped, and blisters applied; sometimes to the temples, in other cases behind the ears, and to the back of the neck. The plan of treatment, both general and local, was strictly antiphlogistic; and the diet consisted of vegetables and milk.

It is apparent from the foregoing brief account, that this catarrhal ophthalmia was not violent in its attacks. Indeed this form of inflammation of the eye is seldom so severe as to require bleeding from the arm. Occasionally in robust persons, general blood-letting would appear to be necessary; but for the most part it may be dispensed with. The abstraction of blood from the neighbourhood of the eyes by cups or leeches is often highly beneficial. Mr. Travers prefers the former, and thinks it "has a very decided superiority over leeches." Mr. Mackenzie, of Glasgow, objects to scarifying and cupping the temples, and also to opening the temporal artery, "That they are attended with a greater degree of irritation and pain than simple venesection, and the application of leeches. They also preclude, he says, in many instances, the use of other means, which are likely to be useful; as blisters to the temples and behind the ears. The tight bandage necessary after arteriotomy is also objectionable in cases of ophthalmia, as it produces a degree of pressure, and a development of heat, which are apt to increase the uneasiness of the eye and head."

The application of leeches to the side of the nose, and inner angle of the eye-lids, would appear to draw blood more immediately from the inflamed conjunctiva, than any means applied more remotely; but where leeches cannot be procured, I have never had any hesitation about the application of cups to the temples, or opening the temporal artery. I have never seen

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any but good effects follow. The irritation and pain instead of being prejudicial, on the principle of revulsion and counter irritation, should be beneficial; and there is no doubt but they are serviceable, unless the inflammation should extend along the skin to the margin of the eye-lids; which I have never seen happen. If the skin should inflame to the edge of the lids, the irritation would then probably be propagated to the conjunctiva of the ball of the eye, and thus aggravate the symptoms.

It is difficult to perceive how the application of cups, or opening the temporal artery, can prevent the placing of a blister behind the ear. The back of the neck is also still left, and I am not aware that evil consequences result from blistering the surface to which the scarification has been applied for cupping. Neither have I discovered that the bandage used after arteriotomy of the temporal artery, has done harm. My patients have always expressed themselves relieved; and make no complaint against the bandage.

As a topical application, in all the acute inflammations of the eye, I have found nothing afford as great relief as warm water. Bathing the eye frequently, and allowing the warm water to pass over the ball, underneath the lids, and washing out the acrid secretions, has uniformly proved highly grateful. It soothes and relaxes the inflamed membranes, and is sufficiently refrigerant by the evaporation which takes place; while it does not produce that hurtful re-action, which succeeds the cold bath. Cooling lotions are pleasant at the moment of application; but in the large majority of cases, all the symptoms are aggravated by their continued use. In the commencement of some cases, they succeed well, and speedily effect a cure. The same good, however, would result from the warm; and without the risk of that injurious reaction which so often ensues. In severe and obstinate cases of conjunctivitis, I have seen the most striking relief from the excruciating pain, arise from the application of cloths wrung out of hot water, and laid upon the closed lids, as hot as the patient could bear. As soon as they became cool, they were again dipped in the hot water.

A great many physicians are still in the habit of recommending cold lotions in every variety of ophthalmia notwithstanding all the best authorities are opposed to them. They regard chiefly the preternatural heat and redness; and think that cold, to diminish the former, and constringe the dilated vessels, the cause of the latter, must necessarily be exactly adapted to the case. I have known instances, where the physician has refused to allow the patient to bathe the eye with warm water, although assured that the cold increased the pain; while the warm gave ease; and the consequence was, that as soon as he was gone, the patient used that which afforded relief, and disregarded the injunctions of the doctor. There is no therapeutical principle in practical surgery, better settled, than that of the great superiority of warm lotions to the eye, in a state of acute inflammation.

Mr. Mackenzie informs us, that he has been in the habit of treating catarrhal ophthalmia with success, on a plan chiefly local and stimulating. Weak

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solutions of acetate of lead and sulphate of zinc appeared to be prejudicial, aggravating the inflammation, increasing the sensation as if sand was in the eye, favouring the formation of ulcers on the cornea, or if ulcers be already present, leading to opaque cicatrices; but that a solution of nitrate of silver, from two to four grains to the ounce of distilled water, abated the inflammation, and uniformly relieved the feeling of sand. He applied a large drop once a day to the eye by means of a camel hair pencil. He also employs, as a collyrium, one grain of corrosive sublimate in eight ounces of water. The eye is bathed with this solution, milk warm, and in severe cases, where the discharge is copious and puriform, it is thrown over the whole surface of the conjunctiva with a syringe. At bed time a little red precipitate ointment is smeared along the edges of the eye-lids.

The trials which I have made of this plan of treatment, do not confirm the observations of Mr. Mackenzie. The inflammation instead of undergoing a remarkable diminution, was increased, and all the symptoms were aggravated. There may have been a difference in the cases; although I have taken care not to use it for strumous ophthalmia in any instance, in which he says it is contra-indicated. Climate and mode of living, may render the conjunctivitis of this country, more decidedly inflammatory, than that of Glasgow, and a strict antiphlogistic plan may be more necessary. However this may be, with my present impressions, I am more disposed to trust to it, in the early stages of conjunctivitis, than to stimulants either local or general. I have always found it to succeed in effecting a cure, and generally in the course of a few days.

Scrofulous ophthalmia prevailed to a considerable extent amongst the children of the institution. The redness of the conjunctiva is less intense, in these cases, than in catarrhal ophthalmia; there not being so complete a net-work of red vessels formed. What, however, is strikingly characteristic of the disease, is the pimples or pustules which form upon the sclerotic and cornea. Three or four red vessels converge, and at their point of union, a pimple appears, which soon becomes a pustule, showing this ophthalmia to be an eruptive disease. Beer, of Vienna, makes a distinction between phlyctenulæ and pustules; but as far as I have been able to decide, the only difference is in size. The smaller pimples may be called phlyctenulæ, and the larger pustules. The contents of the former bear more resemblance to serum; the latter are filled with yellowish fluid, which is probably purulent.

In the larger number of cases, I have found the pimples to present themselves upon the sclerotic coat, underneath the conjunctiva, and in the cellular tissue uniting this latter coat to the former. They burst, and discharge their contents, in many instances, and under proper treatment the ulcer speedily heals. Immediately outside the exterior of the cornea is a very common situation for them. When they appear upon the cornea, the ulcer which they form after opening, is apt to extend both in diameter and depth,

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and is sometimes difficult of cure; and occasionally it penetrates through the cornea.

Extreme intolerance of light is mentioned as one of the most characteristic symptoms of this form of ophthalmia; and Mr. Mackenzie thinks, that the pustular cases are not attended with so much of this, as the phlyctenular. This may be so, although I can not say I have observed it. I have noticed, that the amount of intolerance of light which prevails, is subject to great variations, in the same class of cases; and would seem to depend, not so much upon the degree of inflammation, or the kind of it, as upon some peculiar condition of the sensibilities of the system; and especially of the eye itself.

No difficulty was experienced in curing all the cases of scrofulous ophthalmia, which occurred the past season. Mild purgatives, salts and tartar emetic, with the plentiful use of warm water, and carefully protecting the eye from the light by a shade, was for the most part, all that was required. A few leeches, got out of a neighbouring brook, were employed; but it was found so troublesome to get them to bite, that but a very limited use was made of them. Imported leeches are only permitted by the trustees of the institution, in what are regarded as extreme cases. Cupping the temples, and blistering, were seldom demanded. Under this treatment, it was surprising how rapidly the eyes improved. In no instance did the disease become chronic, rendering scarification of the inner surface of the eye-lids necessary. Neither were stimulating applications to the eye, nor tonics for the general system, indicated in a single instance, by the state of the ophthalmia. There was but one case of ulcer of the cornea, which came on in a little girl, who was admitted with fever of several days' duration. After her recovery from the fever, the ulcer was touched daily, with a camel-hair pencil, dipped in a solution of nitras argenti, four grains to the ounce. This arrested the ulceration, but did not cause the sore to fill up, and I was about to touch it with a pencil of the lunar caustic, sharpened to a point, when she was removed by her mother.

The most severe and obstinate cases of ophthalmia, which I have had occasion to treat, were the rheumatics (sclerotitis rheumatica, vel atmospherica) and the catarrho-rheumtica. One case of the former, supervening upon conjunctivitis puro-mucosa atmospherica, was exceedingly troublesome. Venesection, cupping, leeches, blisters, purging, fomentations, calomel and opium, antimonials, opiate frictions round the eye, and belladonna were perseveringly employed during several weeks, before any very obvious improvement took place. For a long time, she experienced more relief from the application of cloths wrung out of hot water to the eyelids and forehead, as hot as could be borne, than from any other remedy. The pain of the ball of the eye and the forehead was excruciating; especially at night. She finally recovered without injury to the eye. In one case of the catarrho-rheumatica, there was a strong tendency to the formation of phlyctenulæ

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at the beginning of the attack. The affection of the conjunctiva was, however, soon removed, but the sclerotic inflammation continued for a long time, notwithstanding the most active remedies were employed.

A degree of iritis almost invariably attends rheumatic and catarrho-rheumatic ophthalmia. I have seen permanent contraction of the pupil, with effusion of lymph, producing total blindness, take place where the peculiarities of the disease have been overlooked or neglected, on its first appearance. Calomel and opium, two grains of the former, to half a grain of the latter, three times a day, which speedily affected the system, was found to be of great service, after free depletion, by bleeding and purging. The extract of belladonna, smeared on the eyebrow every evening, by dilating the pupil, and thus removing the pupillary margin beyond the circumference of the lens, which is projected forwards very near the posterior surface of the iris, entirely removes all danger of adhesion of the capsule of the lens to this membrane. And where adhesion has taken place, if not of too long standing, the continued use of the belladonna, for months, will frequently cause so great a degree of dilatation of the pupils, that vision is restored to a very useful extent.

Dysentery.—Above fifty cases of dysentery have been treated, none of which have died; with the exception of two old persons, who soon refused to take medicine, on the supposition that their time of departure had arrived; and one woman, who had been sick a month before she entered the house, and was in the last stage of exhaustion. The treatment in all the new cases consisted of full doses of calomel and opium, followed by castor oil, and this succeeded by Dover's powder. Twenty grains of calomel, with two grains of opium, or fifteen grains, with a grain and an half, were given, and six or eight hours after, an ounce and an half or two ounces of castor oil were administered. The opium very speedily relieved the patient from the dreadful tormina and tenesmus, procuring several hours' ease; while the calomel acted upon the liver and mucous coat of the bowels, especially the latter, promoting secretion, thus depleting the congested vessels, and changing morbid into healthful action. Free evacuations were then produced by the castor oil; by which the morbid contents of the bowels were removed, and farther secretion encouraged. After copious purgation, fifteen grains of Dover's powder, allayed the irritation of the intestinal canal, and acting upon the skin, restored its functional action; and by determining to the surface, assisted in removing the engorgement of the inflamed mucous tissue.

In many instances, this course of treatment effected a cure; and nothing farther was required, but attention to diet. In other cases, the calomel was repeated, followed by the oil and Dover's powder. Sometimes an ounce and an half or two ounces of oil, with forty or fifty drops of laudanum, were given without the calomel, after the operation of which the patient took Dover's powder. The return of the desire to rise to stool frequently, with small, slimy discharges, and tenesmus, was regarded as evidence, that more

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purging was required. Free evacuations, by calomel and castor oil, uniformly, for the time, removed the tormina and tenesmus; and the restoration of the functional action of the skin appeared to assist materially in preventing their return.

The first effect of acute inflammation, upon secreting surfaces, is to arrest in a great measure, their natural action; and interrupt the secreting process, by which they are kept moist. We have an example of this, in the dryness of the nostrils, which accompanies a common cold. As soon as copious secretion takes place, the violent symptoms are mitigated, and very great relief is experienced, not only of the local distress, but also of that general feeling of uneasiness, which accompanies disease. This is more especially the case in relation to the mucous tissues; the secretion from which is excrementitious, and requires to be constantly thrown off, to preserve the blood in a state of purity. The animal economy has been so constructed, that it is a law of its nature, to perceive this interruption of functional action, and also to make an effort to restore it; and frequently the unaided exertions of the secretory apparatus itself, are sufficient for this purpose. In many instances, however, these exertions would be ineffectual, and the assistance of art is demanded, to prevent fatal consequences. But art is never more useful, than when it closely imitates nature. In the disease under consideration, it would therefore appear to be a primary indication to restore the functional action of the inflamed mucous tissue, and bring on free secretion. To accomplish this, purgatives are the only remedies, which can be brought to act directly upon the part affected. If we could direct a stream of warm water through the bowels, and thus wash them out, and free them from the acrid matter they contain, and foment the inflamed surface, we should, in all probability, soon produce abundant secretion, and remove the inflammation. But as warm water would be stopped by the way, the stomach rejecting it, and the absorbent veins and lymphatic vessels taking it up, we must have recourse to something we can depend upon to pass through; and it is obvious, that the less irritating it is, the better. Now, all purgatives are more or less irritating; and when we consider that the disease of which we are treating, is an inflammation of the inner coat of the intestines, it would seem rather paradoxical to talk of removing it by irritants. We know, however, from experience, that if we use a mild purgative which will irritate but moderately, while at the same time it promotes secretion, that the discharge from the congested vessels will not only counteract and destroy the effect of the irritant itself, but be of great service in removing the inflammation which previously existed; so that instead of having the inflammation increased, as we might *a priori* anticipate, the free depletion which the vessels are subjected to, will in part, or entirely, remove it.

Calomel and castor oil, we conceive, are admirably adapted to fulfil these indications; and it is on these principles we prescribe them; and wherever they have purged copiously, our patients have been relieved. The more

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drastic cathartics no doubt would procure free evacuations; but they would irritate so much, that the inflammation would be increased instead of being diminished. All the fluid which they cause to be discharged, is barely sufficient, where no inflammation exists, to prevent it being set up. Indeed, the probability is, that they always leave more or less of inflammation; but there is vigour of action enough in the vessels themselves, to remove it, after the cause has passed away. While, then, the inflammation of dysentery is diminished by mild purgatives, it is for the most part, rendered worse by the more drastic; and if they are persevered in, ulceration soon appears, and destroys the patient.

Opiates, I am disposed to think, are not employed as freely as they ought to be in this disease. By themselves they will not effect a cure; although they will mitigate at first, some of the most distressing symptoms. In conjunction, or alternating with laxatives, they are invaluable. They give relief from the tormina and tenesmus, which are dreadfully harassing and exhausting; and afford time, between the operations of the purgatives, for the efforts of nature to come in, and endeavour to restore healthful action. There is no one principle of more importance in medicine, than that time should be allowed to the system, to exercise its own balancing powers, for the purpose of restoring the equilibrium of action. The constant exhibition of powerful medicine of any kind, will sooner or later prove irritating; and the great secret in the practice of medicine is, to do just enough to remove the source of embarrassment, and leave nature to accomplish the restoration to perfect health. With this view, after relieving my patient, I am in the constant habit of waiting to see what the efforts of nature will accomplish, prescribing some mild diluent or refrigerant, which I feel confident will not, to say the least, interrupt her proceedings. These remarks are intended for those just entering on practice, with whom *nimia medicina* is the besetting sin.

Ipecacuanha I regard as an invaluable adjuvant in the treatment of dysentery, and in combination with opium, in the form of Dover's powder, it is generally highly serviceable. The quantity contained in ten or fifteen grains of Dover's powder, is as much as the stomach will bear; and the opium assists in restoring the healthful action of the skin, if in no other way, certainly by allaying the intense irritation of the intestinal canal. In many cases, I have found the stomach so irritable, that the Dover's powder produced vomiting. Here opium alone, in the form of pills or tincture, was administered with the happiest effect.

In but few of the cases of dysentery, which came under my notice this summer, has the fever been so high as to indicate the necessity of venesection. Most of them were seen at the beginning of the attack, and immediate relief was afforded. The pulse was somewhat increased in frequency; and the tongue presented various appearances in a small degree; but was not much furred, nor dry, nor red. In a few instances, however, the symptoms

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were more severe; and blood was taken from the arm, and from the abdomen by cupping. Fomentations and baths were not much used; as the relief obtained was not found to be very important. Still I would not discountenance their employment. In the cases of delicate persons and children, where the more powerful remedies cannot be exhibited in sufficient force, to arrest the disease immediately, they no doubt will prove useful assistants. In the early stages, emollient injections were not prescribed. No difficulty was experienced in controlling and subduing the tenesmus, and they were not considered necessary. In a few instances, blisters were applied to the abdomen, and some benefit was probably derived from them; but they are certainly not as serviceable in mucous as in serous inflammations. I have never seen that prompt relief of the pain and uneasiness in dysentery and bronchitis, which we often observe in peritonitis and pleurisy.

In the secondary, sub-acute stage, the chalk mixture occasionally produces the best effects. The small degree of tenesmus remaining, has been soon removed, and the frequent stools, checked in a very short time. The following is my prescription. ℞. Cret. Prep. 3iij. Pulv. Gum. Acaciæ 3ij. Tinct. Opii 3ij vel iij. Aquæ 3vi. M. S. Tablespoonful every two hours.

In a few cases where the disease became decidedly chronic, other remedies had to be tried. The acetate of lead and opium sometimes checked the diarrhœa as soon as was desirable. Two or three grains with half a grain of opium, were given every two, three or four hours, according to the severity of the purging. When the disease began to yield, it was given less frequently. The balsam of copaiba was also tried, and, where it did not disagree with the stomach, produced the most happy effects; arresting the diarrhœa, diminishing the tenderness of the bowels, and preventing tormina. Two drachms of the balsam, with one of powdered gum arabic, one of tincture of opium, or occasionally two, were mixed with three ounces of water, and a tablespoonful was given three or four times a day. Where it produced sickness of stomach, and vomiting, it was exhibited by injection. From forty to sixty drops, with an equal quantity of tincture of opium, made into an emulsion with a drachm or two of powdered gum arabic, and four ounces of water, were thrown into the rectum two or three times in the twenty-four hours. The acetate of lead in the form of injection, sometimes answered a good purpose. Ten or fifteen grains, with fifty or sixty drops of laudanum, and a gill of starch mucilage, were exhibited three or four times daily. The tinctures of kino and catechu restrained the purging very effectually in some cases. In one or two instances, all these remedies were given. It was found necessary to go from one to the other, as the first appeared to lose its power in controlling the disease. Under this treatment, and confining the patient to thickened milk, rice and milk, boiled milk and bread, and weak animal broth, the diarrhœa was arrested, and convalescence took place. The bowels, however, remained irritable during a considerable period; and great caution was required, both as to diet and

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exposure. The slightest check of perspiration, or the least imprudence in eating, would cause a return of the purging. The occasional administration of an ounce of castor oil, with thirty or forty drops of laudanum, was of material service in advancing the cure.

Physicians, I suspect, have frequently been disappointed in the effects of laxatives, in consequence of not giving them in sufficiently large doses. Small doses of calomel and castor oil, will do comparatively little good. The treatment recommended by Dr. Brown, in the London Cyclopædia of Practical Medicine, would have but little power over the dysentery of this climate. The bleeding and leeching are very well; but "a grain or a grain and a half of calomel, with from five to ten grains of Dover's powder, or half a grain of opium; or five grains of hydrargyrus cum creta, likewise combined with the opiate, may in this country be administered at intervals of four hours, the period being lengthened, when the symptoms begin to abate," would be altogether inefficient in most of the cases we are called upon to treat. It is however due to Dr. Brown to state, that he mentions the practice of the East India physicians, and not with disapprobation. They give scruple doses of castor oil at night, and an oily or saline purgative in the morning, till the dejections become natural and healthy. Dr. Brown's favourite purgative is castor oil. "No more proper laxative," he says, "can be selected, than the oleum ricini, aided in its operation by a mild, tepid, and emollient enema. Some practitioners, he also informs us, think favourably of a solution of neutral salts with which a proportion of tartarized antimony is combined; but it seems doubtful whether the irritating effect of the salt on the intestines, would not counterbalance the benefit likely to accrue from the diaphoretic action of the antimony."

The practice of Dr. Eberle, as given in his work, is "to administer from ten to twelve grains of calomel as soon as possible after the commencement of the disease; and after the lapse of three or four hours, follow it up with an ounce of castor oil, to which twenty or thirty drops of laudanum may be advantageously added." This I consider injudicious practice; 1st. because the dose of calomel is not sufficiently large to make a decided impression; 2d. it is not combined with opium to relieve the patient from the tormina and tenesmus; 3d. the time allowed for the production of its peculiar effects is not long enough; 4th. the quantity of castor oil will not cause free evacuations in many cases; and 5th. it is an error to combine laudanum with the oil, inasmuch as we wish it to operate as speedily as possible, in order to carry off the foul matter dislodged by the calomel.

The facility with which most of the cases I have seen this summer were cured, I think, may be ascribed to their being seen early and the proper remedies administered in full force. The tormina and tenesmus were extremely severe in many of them, but the opium soon removed these distressing symptoms and the patient became easy; time was thus given to the calomel to do its work effectually, and then the oil soon operated, carrying

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off the acrid contents of the bowels, and the Dover's powder, which succeeded, allayed any remaining irritation and restored the equilibrium of action. If the disease had been permitted to run on for several days without check, in all probability, venesection, with cupping or leeching, would have been required in a majority of cases. The lancet I regard as invaluable where there is nothing to forbid its employment; and, while my rule is to do nothing more than appears to be demanded by the symptoms, I am willing to acknowledge that in a disease like dysentery, which for the most part is manifestly inflammatory in its character, the abstraction of blood from the arm, according to circumstances, is the safe side to err upon. But it should be remarked, that in the cases of individuals of enfeebled constitution, such as are met with in an alms-house hospital, the propriety and necessity of having recourse to this powerful agent will not be so clear as in private practice, and more especially in the country amongst a robust race of tillers of the soil.

Dr. Eberle is certainly also in error when he tells us that "our object in the employment of aperients in dysentery is simply to evacuate the contents of the bowels." If the views which I have given be correct, there is something more accomplished by calomel and castor oil than merely emptying the intestinal tube. They deplete and diminish inflammation by promoting increased secretion, and thus convert morbid into healthful action. This peculiar property of acting as an alterative I consider of much greater value than their simple purgative qualities. It is because calomel has this power in a great degree and is but little irritating, that it is thought to be so appropriate in this disease.

Phlebitis.—E. B. ætat. 18, was admitted on account of a large swelling of the labia externa, succeeding to parturition. It is about six months since the birth of her child. These tumours were originally examples of that infiltration of blood into the labia, which are occasionally witnessed during or after parturition. Both labia are enlarged, but the left considerably more than the right. No opening was made into them to discharge the effused blood, and permanent tumours have resulted which are extremely inconvenient, by rubbing against the thighs and causing abrasion of the skin.

June 24th. Was bled for pain in the head and bowels by which she was relieved. The skin and subcutaneous cellular tissue around the opening inflamed and slight suppuration took place.

30th. She complained of severe pain in the course of the vein, extending about two inches up the arm, but without constitutional disturbance.

July 1st. The pain had extended an inch or two farther and was much increased on pressure upon the vein; pulse, skin, tongue, and appetite natural. A blistor was applied over the inflamed vein, and a bread and water poultice to the opening in the skin.

2d. The soreness has extended up to the axilla and is increased in severity; still no fever. A second blister was applied reaching up to the axilla, and an ounce of castor oil was given.

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3*d*. Pain has reached the subclavian vein, which is sore on pressure; countenance indicates much pain and anxiety; and she occasionally sighs. Pulse 94, soft and compressible; tongue clean and moist. Oil operated once freely, since which has had spasmodic pain around the umbilicus. She was now bled in the other arm to the amount of twenty-four ounces or more; was ordered fifteen grains of calomel; and another blister to be applied over the subclavian and root of the jugular vein.

4*th*. Pain along the whole course of the subclavian is very acute; thirst great; total loss of appetite; pain of head severe, and countenance expressive of great anxiety; pulse 123, small and not vigorous; bowels not much operated on by the calomel. Was directed to take fifteen grains of calomel.

5*th*. Pain in the subclavian still very severe, and it now extends up the neck along the course of the internal jugular; other symptoms the same. Having vomited shortly after taking the calomel, fifteen grains more were exhibited, which have operated moderately. The symptoms after this began to yield, and the disease was obviously arrested. The calomel acted slightly on the gums. Antimonials in small doses were exhibited; and emollient poultices applied to the blistered surfaces. The bowels were kept open with laxatives. Considerable tenderness along the entire course of the veins which were inflamed, remained for two or three weeks. Superficial inflammation took place around the opening made by bleeding in the other arm; but it was removed by poultices of bread and water. The cure was complete.

Mr. Liston, in his Elements of Surgery, speaks of phlebitis as a very unmanageable disease. He relies upon purgatives and antimonials, and the application of warm fomentations to the part. "General depletion," he says, "is not admissible, unless at the very commencement of the disease, and local bleeding must be had recourse to with very great caution; for by copious abstraction of blood, gangrene may be induced or at least hastened. Blisters, he farther tells us, have been employed, but with no good effect."

Dr. Robert Lee, in the London Cyclopædia of Practical Medicine, differs from Mr. Liston. "Our chief reliance," he says, "in the treatment of this affection at the commencement, should be placed on the vigorous employment of local antiphlogistic remedies. Almost all the cases of traumatic phlebitis which have been treated with stimulants have proved fatal. The arm should be supported and preserved in a state of rest, and leeches applied along the course of the inflamed vessel. Their number should be proportioned to the severity of the attack, and their application should be repeated until the inflammation is subdued. This is by far the most important part of the treatment, and the leeches should be repeatedly applied in large numbers. The arm should afterwards be covered with an emollient or saturnine poultice, or an evaporating lotion. Diaphoretics and cooling saline purgatives should also be exhibited."

Mr. J. H. James, in his Observations on Inflammation, London, 1832,

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says, that "with respect to general treatment when the primary inflammation alone is to be considered, I apprehend, it cannot be too decidedly antiphlogistic; when, from the continuance of the disease or other symptoms secondary inflammation may be suspected, this mode of treatment is more questionable and its results often unfavourable. General blood-letting is certainly a remedy of great efficacy where it is proper, but opinions are much divided on this head; and at all events, when the secondary inflammations are running into rapid suppuration, it is likely rather to expedite the process than prevent it. M. Sanson has treated phlebitis with tartrate of antimony with success; it is at all events a safer mode than bleeding."

These are some of the latest and most respectable of the British authorities; and it must be admitted that their mode of treating this dangerous disease, is sufficiently cautious. With the limited experience I have had, I am not disposed to criticise severely, but I may be permitted to observe that Mr. Liston's fears of local bleeding are certainly unfounded. Dr. Lee places his principal dependence upon repeated leeching, and his recommendation is at least as good as Mr. Liston's. They are all, however, apprehensive of general blood-letting; and none of them speak of blistering. In the treatment of my case I do not suppose that any one of the remedies should have undue importance attached to it. I believe they were all beneficial; and I do not think there is evidence that any of them did harm. It is true the symptoms did not abate immediately after the bleeding; but neither did any considerable amendment take place directly subsequent to the use of any of the other remedies. I am inclined to ascribe as much value to the blisters as to any of the means employed, notwithstanding Mr. Liston's opinion is against them. If fomentations are likely to have any influence upon an inflammation of the inner coat of the brachial or subclavian veins, I should think that counter-irritation by a blister would be much more powerful in its effects. There may, however, be cases, as of persons of very bad constitution, where both general bleeding and blisters may hasten the fatal termination. If the debility was great, and the blistered surface became gangrenous, this assuredly would be the result. One of the chief objections to general blood-letting has not been mentioned by these writers. There would seem to be a peculiar predisposition to this form of morbid action, in the systems of those who are attacked with phlebitis; and the same disease may commence in the other arm after venesection. This had nearly happened in the case narrated. A second attack, in the opposite arm, would greatly diminish the chance of recovery. Still if leeches, which I should much prefer, could not be had, I would, with my present impressions, prefer risking that danger for the sake of the expected benefit.

I had intended to remove the tumour of one if not of both of the labia, with the knife; and she was very desirous to have it done, and urged it, before I thought she had sufficiently recovered from the effects of the phlebitis. But

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she was permitted to leave the house, and has probably been prevailed upon to change her mind, as she has not returned.

Syphilitic Ulceration around the Anus, passing into the Rectum, and extending up the Colon. Diarrhœa.—N. D., ætat. about 25. This girl I found in the house when I took charge of the female wards; and I ascertained that she had come in on the 19th of October, 1837, affected with slight diarrhœa; at which time there were small ulcers around the anus, extending within the margin, and of considerable depth. When she came under my care, May, 1838, the ulcers of the anus had healed; but the whole circumference was occupied by chaps or clefts indicative of the former existence of those ulcers called rhagades, which are supposed usually to be caused by the syphilitic virus. She had previously been about two years in the alms-house, and was cured of syphilis. I found her complaining of nothing but the exhausting discharges from the bowels, by which she was greatly reduced. Astringents and opiates were perseveringly employed, and with occasional and temporary mitigation of the diarrhœa; but in spite of all the efforts made for her relief she gradually became more emaciated, and sunk on the 3d of July.

On examination the whole surface of the rectum as high as the promontory of the sacrum, was rough and hard, from the cicatrization of ulcers. These cicatrices were well defined by narrow strips of mucous membrane, separating them from each other, and indicating the extent of each ulcer. With these exceptions, the mucous coat was entirely destroyed, and the cicatrices were formed in the sub-mucous cellular tissue. The muscular coat was thickened and indurated, and by this means the diameter of the bowel was considerably lessened. The sigmoid flexure of the colon, the descending colon, and part of the transverse arch, were partially covered with similar cicatrices, there being portions of mucous membrane, comparatively healthy, interposed. At the upper part of the diseased portion, several ulcers were discovered, from a quarter to half an inch in diameter. These were evidently specimens of the same morbid action, which produced the cicatrices; and there can be no doubt but that the ulcerative process, had gone on progressively from the anus upwards; those below healing, while new ones were forming above. The sensibility of these ulcers could not have been great; as she complained of but little pain. Cups were applied once, to relieve soreness at the lower part of the abdomen.

Syhilis. White Swelling of Knee Joint. Diarrhœa.—M. R. ætat. 22, was admitted, May 10th. Had a chancre on the nympha. The knee joint was considerably enlarged; and puffy and tender around the patella. She first had swelling of the ankle, it then was translated to the elbow, and finally settled in the knee. She was in a state of great prostration, very lean, and her pulse small and feeble. Cups and blisters were applied to the knee, under which treatment it was improving, when she was attacked, the beginning of June, with diarrhœa; and about two weeks after with symptoms of

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dysentery. In a few days she was relieved of the dysentery; but continued to be harassed with diarrhœa, sometimes better, from the means employed, and again becoming worse. She lingered in this condition until the 30th of August, when she expired. As her general strength declined, the swelling and pain of knee decreased; and at the time of her death, there was but little enlargement or tenderness.

Autopsy, 18 hours after death. Emaciation extreme. The principal disease was found in the colon and rectum. The mucous and muscular coats of the rectum were thickened and indurated, of a dark red, almost black colour, and nearly the whole surface of this bowel was in a state of ulceration, the ulcers penetrating the mucous and sub-mucous tissues. They were of various sizes, and irregular in shape; some of them cicatrized, and others still open, and burrowing under the mucous coat, which was separated from the muscular at these places. Thickening and ulceration extended up the colon to about the middle of the transverse arch, and nearly the whole surface of the sigmoid flexure, was covered with ulcers resembling those of the rectum. Higher up the greater number of the ulcers were cicatrized. Above the ulcerated parts, and towards the cæcum, there was a number of dark blue spots situated beneath the mucous coat, some as large as a split pea, others not larger than a pin's head. The whole of this part of the mucous coat, above the ulcers, up to the caput cæcum, was thickened and indurated. The small intestines were normal, with the exception of a small portion of the ilium, three or four inches in length, where there was redness, and a small quantity of blood extravasated under the mucous coat. About the cardiac orifice, and along the small curvature, the mucous coat of the stomach was red and softened, and towards the pyloric extremity there was thickening and corrugation, with red patches. Some tubercles were found in the upper part of the left lung, and there was slight redness of the bronchial membrane. The left knee, in which the tumefaction had in a great degree subsided, prior to death, exhibited remains of inflammation of the synovial membrane, principally seated around the patella. This membrane was of a brownish red colour, somewhat inclining to yellow. There was a small quantity of fluid in the joint. On the left side of the patella, there was a depression, of an oval shape, the longest diameter about an inch, which looked like a cicatrized ulcer. On the opposite side of the patella, there was an unnatural roughness of the synovial membrane.

Gastritis. Hypertrophy of Liver. Disease of Kidneys. Thickening of Mucous Coat of Colon. Diarrhœa.—E. G. ætat. about 16, a large, fat, flabby, overgrown girl, of leucophlegmatic habit, was treated for an ulcer of the leg, which healed slowly, and she was discharged cured. About six weeks ago, she again came into the hospital with dysentery, for which she was treated, and in a short time entirely relieved. Her bowels, however, continued irritable, and she had dirrhœa occasionally. Three weeks ago she was attacked with symptoms of gastritis, tenderness of epigastrium, and

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frequent vomiting, with red tongue, burning pain of stomach, and intense thirst. Pulse 135, small and feeble. She was put on iced barley water, and directed to swallow small lumps of ice. An attempt was made to cup the abdomen, but no blood could be obtained. A blister was applied, and tablespoonful doses of a mixture, consisting of one drachm of super-carbonate of soda, one drachm of laudanum, and four ounces of water were given, every two or three hours. Under this treatment the vomiting was checked, and she became much better. Her appetite became good, but as soon as she began to take food, the symptoms of gastritis re-appeared. The diarrhœa returned with augmented violence, and she died September 11th.

Autopsy, 9 hours after death. Considerable fat upon the surface, and about the viscera of the abdomen. Brain and lungs normal. The liver was increased in size about one-fourth, and throughout its entire substance, as well as on its surface, was changed to a bright yellow colour. The kidneys were both diseased; the right one being wholly occupied by cavities, containing a thin greenish fluid, and a calculus the size of a filbert was found in one of the infundibula. The left kidney was beginning to be affected in a similar manner. One or two small cavities had already formed. The mucous coat of the whole of the stomach was soft and pulpy. It could be scraped off easily with the end of the finger nail, and broke when an attempt was made to raise a strip. Along the smaller curvature it was red, and also in the great cul de sac. The mucous coat of the small intestines was in the same state of softening, with some patches of a red colour. The mucous coat of the colon was very much thickened, especially the lower half, and likewise that of the rectum. In some places it was the eighth of an inch thick, and so much indurated as to resemble gristle. The lower half of the large intestines, besides being thickened and indurated, was in a state of ulceration. Long lines of ulceration running nearly in the longitudinal direction of the bowel, from an eighth to a quarter of an inch wide were observed. These ulcers were of a dark colour, apparently tinged with bile, and did not penetrate deeply into the thickened mucous coat. They could be cut off with a knife, and the yellowish indurated mucous tissue was to be seen underneath. Above this thickened part, there was a portion of the bowel nearly normal. The whole surface of the caput cæcum was of a deep red colour, thickened and softened, but not ulcerated.

The disease of the lower part of the large intestines was doubtless an example of chronic thickening and chronic ulceration, and had probably existed for a long time. The sensibility of this part of the bowel must have been so much diminished, and its vitality so much reduced, by the change of its organization, that the ordinary causes of disease must have had but little effect upon it. This we suppose will explain the absence of diarrhœa, previous to the attack of dysentery. The inflammation which produced the dysenteric symptoms, was no doubt seated in the caput cæcum; the acrid secretion from which irritated the anus, and caused tenesmus. If the gas-

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tritis had not supervened, the inflammation of the caput cæcum, which had been in a great measure removed, and which had not passed into ulceration, might not have been aggravated, but entirely cured, and she might have lived for a considerable time, notwithstanding the thickening of the lower part of the colon, and of the rectum.

Laryngitis.—Two cases of laryngitis have occurred, and were treated successfully. It exhibited the ordinary symptoms. The thick, hoarse, whispering voice, cough and dyspnœa, with tenderness or uneasiness in the larynx, and great anxiety of countenance. They were both bled freely from the arm. Leeches were applied to the neck in one case, and the external jugular vein was opened in the other. Purgatives were administered, and antimonials, to the extent of causing nausea, and blisters were applied to the throat. The vapour of boiling water was inhaled, and the throat frequently gargled with tepid water. As the disease subsided, calomel and opium were given. This is a disease which runs its course to a fatal termination, with extreme rapidity, if relief is not early afforded, and it is greatly to be regretted that there is so much difference of opinion amongst our best writers, as to the most effectual mode of arresting it in its progress. Blood-letting has been the chief remedy relied upon by some physicians, and enormous quantities of blood have been abstracted, and notwithstanding, the patient has died. Dr. Armstrong mentions a case, where one hundred and sixty ounces of blood were taken in six hours, and the patient died within twenty-four hours. General Washington lost eighty or ninety ounces in twelve or fourteen hours. On the other hand, Dr. Francis of New York was bled to the amount of 152 ounces in five days, and was cured; and Sir John Macnamara Hayes was bled, in his first attack, three times, and each time with manifest relief. In his second attack, however, he was again three times bled, but the disease proved fatal. This and other cases induced Dr. Baillie to affirm, that "venesection, even when employed strenuously and early, was of no real use." Dr. Armstrong says, that "blood-letting exercises upon the whole less influence over this than over any other form of inflammation." He nevertheless considers it "an useful auxiliary in the treatment." Dr. John Cheyne thinks "that blood-letting will be more clearly indicated in youth than in age; and that we may bleed with most hopes of success when the symptoms of inflammatory fever are most evident."

Both my patients were young, but the symptoms of fever were not very evident. They were both bled freely from the arm, to the extent of twenty-four or thirty ounces, within twelve or eighteen hours of the appearance of violent symptoms; but I cannot say that either of them appeared to be much relieved. Sir J. M. Hayes was not bled in his second illness, till the second day. This I conceive made a material difference in the prospect of relief from the remedy. The great danger in laryngitis proceeds from the effusion of serum into the cellular tissue, beneath the mucous membrane; and although bleeding will doubtless have considerable power in giving a check

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to this effusion, and may prevent more serum from being poured out, it cannot remove immediately that which is already effused; and if the tumefaction from this œdema has once reached a certain point, viz. that at which a sufficient quantity of air cannot be admitted to oxygenate the blood, this fluid, thus imperfectly decarbonized, will soon weaken the vital powers so as to render recovery impossible. Hence although I did not expect my patients to have their breathing instantly made easier by venesection, (this I knew was to be the work of the absorbents, by removing the effused serum,) I nevertheless hoped and expected, that I should thereby prevent any increase of the œdema, and consequently of the dyspnœa. I was therefore not disappointed when I found the laborious respiration continue. I did not, however, think it necessary to repeat the bleeding from the arm on that account, and I did not wish to debilitate my patients more than was absolutely necessary; but considered it very important to suffer them to retain their nervous and muscular power in order that they might struggle successfully against the obstacle to the introduction of air into the lungs. Having as I thought, abstracted as much blood from the general system as would give a check to the tendency to the farther effusion of serum into the sub-mucous cellular tissue, I next directed my attention to those remedies, which, while they would not greatly increase debility, would diminish inflammation, assist in preventing an increase of the œdema, and promote the absorption of the fluid already effused.

Immediately after the bleeding the neck was fomented, the vapour of boiling water was directed to be inhaled, the throat and mouth were frequently washed out with warm water, and twenty grains of calomel were administered. In all the acute inflammations of the fauces, larynx and pharynx, I regard frequent gargling with warm water as one of our most valuable remedies. It is a powerful adjuvant in diminishing pain and promoting secretion. There being no decrease of the symptoms, leeches were applied in the one case, and the jugular vein opened in the other, after three or four hours had elapsed. Where the leeches can be procured, leeching is to be preferred. The external jugular, it is true, receives veins from the front of the neck, which no doubt have a communication more or less direct with the larynx; but more blood will in this way be drawn from the general system, and a smaller proportion from the part affected. Antimonials were also exhibited, so as to produce nausea; taking care not to excite vomiting. They were expected to assist in keeping down the action of the heart, and promote the absorption of the fluid already effused.

The propriety of vomiting in these cases, is one of those disputed points to which reference has been made. We are told by Dr. Armstrong, in his lectures, that the first thing is an emetic. He says, "I have more faith in antimonial emetics in laryngitis, than in any other remedy taken singly, if they are given so as to produce full and free vomiting." On the other hand, Dr. Cheyne tells us, that "emetics aggravate the danger; and that after

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bleeding to forty or fifty ounces from the arm and by leeches, or cupping the back of the neck, he would give the patient a powder containing two or three grains of calomel, three or four of pulvis antimonialis, and one-half or one-third of a grain of opium, every third or fourth hour till the gums became affected." "This powder," says he, "we prefer to an exhibition of tartar emetic, not wishing to expose the patient to the danger of vomiting, which is productive of a frightful struggle in laryngitis." In support of his practice, Dr. Armstrong relates a case of a woman on the point of being suffocated in acute laryngitis. Her voice was suppressed, and she pointed repeatedly to the seat of her distress with her finger. He gave her a dose of antimony and ipecacuanha; and after vomiting she spoke distinctly; and the next morning when he saw her she was perfectly convalescent.

Notwithstanding the high authority of Dr. Armstrong, I unite with Dr. Cheyne in his opposition to vomiting in acute laryngitis. If our present views of the pathology of the disease are correct, and the chief danger arises from the effusion of serum into the sub-mucous cellular tissue, one would suppose vomiting would be, to say the least, a doubtful remedy, as to the probability of benefit; and not unaccompanied by danger, even if the relief was more certain. In croup, where the dyspnœa is partly caused by the effusion of mucous and lymph, upon the free surface of the larynx, which can be dislodged by vomiting, and the passage thus to a certain extent cleared of obstruction, there is a certainty of more or less advantage; but in laryngitis, the effused fluid being beneath the lining membrane of the larynx, it is manifestly impossible to force it up into the fauces, and have it thrown out of the mouth; and it is therefore plain, that the tube cannot in this way be made more open. It is also evident from the frightful struggle which frequently attends the act of vomiting in these cases, that spasm of the muscles of the larynx is brought on, which threatens a complete closure of the rima glottidis, and might be productive of fatal consequences. Crippled as these parts are, by the congestion of their blood-vessels, and the effusion of serum around the fibres, and between the tissues, it is not surprising that irregular action should be brought on by the violent motion caused by vomiting. How then, it will be asked, was Dr. Armstrong's patient relieved? I can see no other mode than this: viz. that the prodigious effort made in order to keep open the rima glottidis, and support respiration, had forced a portion of the serum to change its position, and be diffused amongst the parts around, thus diminishing the tumefaction of the glottis, and consequently enlarging the opening. But it would appear from good authority, that there is no certainty of relief being thus obtained in all cases; and the struggle is so frightful as to deter good practitioners from having recourse to this remedy. I am, therefore, inclined to rely upon the other means in our possession.

My next remedy was a blister, covering the whole front of the neck, and going two-thirds or three-fourths round. Here I have both Drs. Armstrong

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and Cheyne opposed. The former says, "that blisters are useful when the inflammation has been rendered chronic, but not till then;" and the latter tells us that "blistering the neck is of very questionable efficacy, and by the inflammation, stiffness, and soreness which it occasions, adds much to the sufferings of the patient, and, when bronchotomy becomes necessary, to the inconveniences which attend that operation. If the physician reposes much confidence in the antiphlogistic power of a blister, let it be deferred till bleeding has been carried as far as is expedient, and then let it be applied to the upper part of the sternum."

Dr. Armstrong's opinion, even unaccompanied by reasons, is certainly entitled to great respect, but he is not infallible; and I confess I cannot understand how that counter-irritation which is said to be serviceable in chronic laryngitis, should not prove beneficial in the acute form of the disease. It will not be asserted that the blister will increase the fever so as to counterbalance the good to be derived from the external irritation. The fever has been reduced by the previous treatment; and observation shows that no such increase takes place. The blisters were thought to have been of material service in the two cases narrated above.

Dr. Cheyne gives us reasons for questioning the efficacy of blisters, but they do not appear to me to have any great weight. Some pain has certainly to be endured, but not greater than from the application of a blister to many other parts. I have not heard of any complaint of extraordinary suffering; but on the contrary, whenever the breathing is relieved, the pleasure is so great that all other kinds of uneasiness appear insignificant. Where the skin lies so close to the organ affected, and the counter-irritation can be brought to bear so immediately upon the part diseased, I should expect much benefit; and I think, unless I am greatly mistaken, that observation will sustain this opinion. Inflammation will be diminished and absorption promoted.

With respect to Dr. Cheyne's objection, that bronchotomy will be rendered more inconvenient, I do not perceive its force. This operation may be somewhat more painful to the patient; but we surely ought to employ, in the first place, all possible means for avoiding the necessity of an operation, and not be deterred from doing all in our power for the cure of the patient, from the dread of some little additional difficulty in the performance of an operation, which after all may never be required. I do not imagine that the difficulties will be augmented, and I suppose most persons would prefer taking the chance of being cured by the blister, to preserving the neck free, that a little less pain might be experienced from the operation, should it unhappily become indispensable. I have therefore no hesitation in recommending blisters as an important part of the treatment of acute laryngitis.

After the first violence of the disease has been subdued, I have thought that benefit was derived from small doses of calomel and opium, so as slightly to affect the gums. A full dose of calomel should be given early

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in the attack, to be followed up by castor oil or salts, if it has not the effect of purging freely; but towards the conclusion, or when the dyspnœa has been considerably lessened, the constitutional effects of calomel will expedite the complete restoration to health.

In the winter season it is very important that the temperature of the patient's apartment should be kept as high as 60 deg. of Fahr. If he breathes a cold air, it chills the skin and aggravates the inflammation.

One case of prolapsus uteri has been admitted. She had been affected with the complaint during eighteen months. During the last six months the whole uterus had been outside the vagina, and the os uteri was ulcerated all round the opening. I returned the uterus to the vagina, put on one of my trusses, and the next day she went to work, and has not since made any complaint.

Art. V. *On Apoplexy and Palsy.* By Alexander Somervail, M. D., of Essex County, Virginia.

In January, 1786, I first saw a case of apoplexy. The subject was a man in easy circumstances, ætat. about 60; he lived as such gentlemen in this part of Virginia did in those days—a full table, spirit and water before and after dinner, more or less, perhaps a mint julep before breakfast, seldom coming near intoxication. The evening before his attack he was very much intoxicated, even to insensibility. Next morning he was suffering as usual in such circumstances, nausea, vomiting, vertigo, headache, &c. After some hours in this situation apoplexy came on and terminated in coma, in which condition I saw him, about an hour from the attack. He was bled and a blister applied to the head. In two hours another physician came, he was then bled more largely, the coma continued till next morning when he died.

In November, 1787, a gentleman, ætat. about 35, a full liver, and for a few years (two or three) a hard drinker, chiefly rum and water. His custom was when the desire for drink came on him, to drink, in company or by himself, to complete intoxication, and keep that up day and night till he became sick, with vomiting, and all the horrible feelings usual in such situations; then to call on me under the dread of a fit and death thereby. When thus suffering a fit came on; I was present and bled him; he recovered so as to walk about next day, but that night he died.

In June, 1800, a man, ætat. about 60, among the working planters, a very large frame, full of flesh and blood, but not corpulent. With his manner of living I was not acquainted, but have no doubt he used a full allowance of meat and bread, with cider and brandy. He had palsy of one side

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a few days; his pulse was large and full, by far the largest artery I have ever felt. I thought there could be no mistake in bleeding him, which I did, gave a purgative and blistered. He died in two days.

From these and some other cases I began to doubt the propriety of the depleting plan; in particular the coming on of apoplexy after the stimulus of spirit had subsided, and the opposite state had come, and I have also heard of similar cases on good information, and of late years. I thought the disease consisted in the suspension of the nervous power from over excitement, and time was required for its reproduction from the arterial system.

In 1804, a lady, ætat. upwards of 70, and for many years in good health, and a near neighbour, when finishing a hearty dinner, fell from the table speechless, her face drawn to one side. I was soon there, found her vomiting; I gave, with difficulty, a solution of sulphate of copper, which emptied the stomach effectually; she was relieved, lived seven years and had no return.

In 1807, a middle-aged man in poor circumstances lost the use of one side. I gave him the muriated tincture of iron, he took ten drops every two hours until six ounces were taken; he recovered entirely. Died from fever in 1815; no return of palsy.

Since that I had an aged mulatto woman, with palsy of one side. She had been cook in a full living family, and corpulent. The tincture of iron, I believe, was given to her faithfully, but had no effect.

In October, 1812, a gentleman, ætat. 66, tall and spare, a hearty eater, a great smoker, used a little spirit every morning before dinner, and in the evening, and had long been in good health; was a member of congress from Kentucky, was passing the interval between the sessions with his friends in Virginia, and made his home with his brother, who was a near neighbour. They were together at a friend's, near twenty miles off, where he was taken with palsy; he came home with his brother where I was present. After getting him in bed, his brother, being an esteemed physician and friend, asked me to bleed him; to this I objected, endeavouring to show the injurious consequences as already mentioned, and proposed an emetic and cathartic followed with the muriate of iron. This was assented to and instantly executed. Next day the relief was manifest; he began the muriate and continued it through the winter. He was able to walk in about a week; went to the meeting of congress, and after the 4th of March returned to his family in Kentucky. He died in 1832 from old age; no return of palsy.

This summer while reading the Life of Sir Walter Scott, by J. G. Lockhart, I was surprised to perceive the old system of bleeding and starvation applied in all its force with partial relief; but the system giving way, the disease returning every time worse, and returning sooner. While reading this I received a letter from my brother giving an account of a slight attack in himself, treated exactly in the same way. This made me attend more particularly to Sir Walter's case. He was a full liver, a large drinker, but

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cerebellum being removed for examination, the right lobe was found to be of its full size; the left about one-fifth smaller, and the greater part of its under surface in a *remarkably* collapsed state—*hollowed in* as an organ usually appears *externally*, when there has been any very great loss of substance within. In one place to the extent of about three lines square, the disease beneath had penetrated quite to the surface, and over this the *pia mater* contained a considerable quantity of dull yellowish serum, elevating the *arachnoid;* otherwise the surface of this lobe of the cerebellum looked well, retaining its integrity, natural colour and consistence.

"An incision having then been made through the collapsed portion to the centre of the lobe, and another to cross it, it was fully demonstrated that the whole substance of the organ below the *crus cerebelli* was destroyed, and all traces of it gone, except a line or two in thickness, of the very surface which served as *parietes* to what may be called the cavity. The sides of the cavity were in contact, and were connected here and there by a very soft delicate tissue of a light rusty brown colour, and were separated by the slightest force. The same sort of substance lined the cavity, appearing in some parts a mere discoloration of the inner surface; in others, like a distinct tissue, passing by invisible degrees into the *pia mater*, where it dips down between the lobes of the cerebellum. The cavity very probably contained some serum, but if so, it had escaped before it was laid open. The crus cerebelli had a dull, somewhat opaque yellowish colour, and was considerably firmer than natural, especially towards its under surface, where it bounded the cavity. This surface was also somewhat irregular, as if a small portion of it had been destroyed by disease. On cutting through its substance, there was found a coagulum of dark-coloured blood of the size of a duck-shot; the remainder of the cerebellum was healthy."

In this case, we have a remarkable pathological proof of a relation existing between the cerebellum and the instinct of reproduction; and the revival of the instinct and powers of propagation, (which had for years been extinguished,) taking place on the accession of a disease of the cerebellum, and continuing active until the organ began to lose its firmness of texture, and to undergo disorganization, is strong confirmation of the evidence furnished by the two preceding cases, that this part of the brain is the source and centre of the instinct.

Boston, December, 1837.

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ART. VIII. *Account of Scarlatina, as it occurred in Charlestown, N. H., in 1837–8.* By SAMUEL WEBBER, M. D.

FROM October, 1837, to July, 1838, Scarlatina prevailed in this place, though not extending over the whole town, but being limited to the southern half. The general character of the disease was rather mild, though there were some severe cases, and a few instances of protracted and complicated secondary affections, as well as some occasional circumstances worth noticing.

In the well marked cases, the eruption was copious, fading almost uniformly on the fifth day, and always as soon as the sixth. In several instances, a miliary eruption of considerable extent supervened on the fourth day, blending with the proper eruption of the scarlatina, and dying away with it. These were the cases in which the vigour of the eruption was kept up till the sixth day. In many of the lighter cases the eruption began to fade on the third and fourth days, in a few instances on the second; and in several, a thin sprinkling of minute red points was observed on the body for only a single day.

The affection of the throat had an equal variety of severity and duration, and generally corresponded in these respects with the affection of the skin, except in a few cases being of little longer duration. At the commencement of the attack, the soft palate, tonsils and fauces, as far as visible, were of a bright red, studded with minute vesicles or papulæ, which I supposed to be the first appearance on these parts of the eruption characteristic of the disease showing itself earlier there than on the external skin, as in some other exanthems. This eruptive appearance I have always noticed in all the varieties of scarlatina, though the prevailing tint differs in different epidemics and in different cases of the same, the more malignant having a deeper and more dusky shade of red, verging into or mottled with purple; the malignancy being somewhat in proportion to the darkness of the colour. In the milder cases, these papulæ or vesicles subside and disappear with the redness; in the more severe, they pass into sloughs or crusts, more or less superficial, lighter or darker in colour, and more or less confluent, according to the combined severity and malignancy of the case. In favourable cases, these, after a short time, are loosened and thrown off, leaving beneath a healthy and healing surface, and affording in the whole process a strong likeness to the desquamation of the skin, which follows the external eruption, being in effect but an exemplification of the same process upon a constantly moist and secreting surface. In the more malignant and intractable cases, the vesicles degenerate into gangrenous and sloughing ulcers.

There is often, also, an exudation of patches of coagulable lymph upon the surface of the mouth and fauces, particularly upon the tonsils and uvula.

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This generally accompanies the more entonic variety of the complaint, and is not peculiar to the eruptive sore throat of scarlatina, but may often be seen in cynanche tonsillaris.

The regular appearance of this eruption in the throat, seems to have been singularly overlooked even by the most esteemed writers on this disease. They speak of the efflorescence first showing itself on the face and neck, and then on the trunk, and spreading to the inside of the mouth and fauces; and some even mention this as only an occasional circumstance, whereas in an experience of some years, of several epidemics, and a large number of cases, I have found its appearance so uniform and invariable, preceding the eruption on the external surface, that it has often served me as a diagnostic in the early stages of the complaint.

In the epidemic under consideration, the affection of the glands of the throat in the well marked cases was severe, though extreme in none, being, in all instances of sudden and severe swelling, successfully combatted by sinapisms or blisters.

In a few instances, there was a considerable discharge of bloody mucus from the throat and nostrils, with swelling of the upper lip and of the nose; thick crusts also formed on the edges of the nostrils and on the lips.

In three or four cases there was, after the turning of the eruption, a singular attack of delirium, resembling exactly delirium tremens, lasting from 24 to 36 hours, when it was subdued by the combined agency of a heavy dose of morphine and a powerful blister to the back of the neck. Either of these singly seemed to be productive of little benefit. I began in part of the cases with one, and in part with the other of these two remedies, but relief was not obtained in any instance till the action of the two was combined.

One of my patients, a little girl ten years of age, was suffering from the effects of an injury of the foot, in consequence of which two abscesses had formed, one below the lower point of the fibula, and the other over the lower extremity of the cuboid bone. These had been opened and evacuated, and their cavities were obliterated, though small superficial ulcers remained at the points of opening, filled with granulations. Soon after the breaking out of the eruption, and while these ulcers were covered with adhesive plasters, sloughing of them took place, and before the process could be arrested by a change of dressings to fomenting poultices, frequently renewed, nearly the whole of the integuments of the original abscesses were destroyed down to the ligaments and periosteum, and these were so much injured, that though the cavities were in a week or two filled with healthy looking granulations, the process of cicatrization was extremely slow, and exfoliation of the bones took place, retarding the perfect healing for several months. Among the fragments of bone discharged, I recognized a considerable portion of the articulating surface of the lower end of the cuboides.

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In another instance, a stout healthy lad of sixteen, the day before the attack, fell from a cart loaded with hay, and as he slid over the side of the load, was partially arrested in his fall by one of the pointed stakes of the cart, that projected through the hay. This caught him by the scrotum. The consequence was an irregular laceration of the scrotum extending through its substance and more than an inch and a half in length, as I first saw it, when the part was much corrugated. The wound was carefully closed by three or four stitches, with strips of adhesive plaster between. From the effect of the attack, however, adhesion failed to take place; the edges swelled and became sloughy, with a thin acrid discharge, and when I went to dress the hurt on the day of the attack, I found one or two of the stitches had already cut their way out, and I was obliged to disengage the others. After the eruption had declined, the swelling gradually subsided, the edges became covered with healthy granulations, contracted, and in the course of a fortnight were united firmly and smoothly.

Some years ago, during the prevalence of scarlatina, a similar morbid action took place in the edges of the wound made by the lancet in bleeding a patient. After a partial adhesion, the edges became disunited, and by what seemed rather a phagedenic operation than the formation of any considerable slough, the puncture was converted into an oval hole extending into the vein, in which all circulation had ceased. After the decline of the eruption, and considerable improvement in the state of the throat, and of the general symptoms, this patient was attacked with inflammation of the lungs with an effusion of water, by which he was carried off with great suddenness, so that no opportunity was afforded of knowing what would have been the termination of the local injury of the vein.

In a number of the cases, after the turning of the eruption, and while the disquamation was going on, there were severe pains and lameness of the joints, chiefly of the upper extremities, and particularly of the wrists, but in several, the legs also were affected. Little or no swelling accompanied these, and their duration was but of three or four days. Friction with warm camphorated spirits, or with some opiated liniment, gave considerable relief.

In two or three cases at the expiration of the second or third week, neuralgia occurred, in one case behind the ear, in another in front of it, in a third in the supra orbitary nerve, and in the sternum. This affection was severe but not permanent, appearing to be connected with derangement of the digestive organs, and more or less intermittent. In the severest case, that of the pain in the sternum, in which also the pain was most persistent, prompt and perfect relief was obtained by the application of cerate sprinkled with morphine to the cutis, previously denuded of the cuticle by means of a blister. In the others, after clearing the alimentary canal by means of an emetic and cathartic, gentle doses of the sulphate of quinine soon effected a cure.

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There were a few instances of rapid and severe bloating coming on after apparent recovery. This seemed generally to be accompanied or produced by derangement of the alimentary canal and its subservient organs, particularly the liver. An emetic followed by a brisk mercurial cathartic generally produced great evacuations of bilious matter followed by a speedy subsidence of the bloating. In one or two cases the derangement of the digestive organs was more lasting, accompanied with feverishness, probably gastro-enteritis, and required some days perseverance in the use of remedies before it could be subdued. In these cases, moderate doses of calomel and Dover's powder, with some mild laxative interposed occasionally, seemed of much service. In one case only did this bloating pass into a genuine dropsical affection. In this instance, after some amendment, the child being imprudently fed with too much and too hearty food had violent convulsions of two or three hours duration, lasting until repeated doses of a powerful emetic character had succeeded in exciting the action of the stomach, and the disgorgement of its contents. Severe bloating with great prostration of strength followed, succeeded by an erysipelatous eruption over the bowels, and, finally, deposition of water in the cellular membrane with scanty and bloody urine. Digitalis, ultimately combined with and followed by quinine, then by cinchona in infusion with carb. potass. and infusion of chimaphila umbellata gradually effected a cure, though the case was tedious and troublesome; the child previously to the attack of scarlatina having been much troubled with an asthmatic affection which was greatly aggravated by the subsequent diseased actions, and probably in its turn reacted unfavourably upon them.

Two cases terminated fatally from effusion of water into the lungs. One of these ended thus, on, I believe, the sixth or seventh day. I did not see the patient till about four hours before death. She was a stout young woman who was averse to employing a physician, thinking it better to trust to nature and domestic remedies in a disease that had a certain course to run. The weather at the time (July) was extremely warm, though there was a strong southwesterly wind. Suffering much from the combined heat of the disease and the season, she endeavoured to alleviate it by exposing herself freely to a strong current of air through an open window, and even by sitting in an outer door way. The day previous to her death she complained of oppression at the chest, and of difficulty of breathing, and next day seemed to her parents so much worse, that, in spite of her opposition, they sent for me—too late, however, to be of any use.

The other was a boy ætat. 10. He had passed through the eruption about a fortnight previously, and in spite of all my remonstrances was suffered, by his ignorant and imbecile parents, to run out doors at pleasure. In this way he was greatly exposed one day in a cold January rain, the next day he became sick with symptoms of a bad cold; on the subseqnent day he was much worse, and towards night I was sent for. I found him labouring

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under the symptoms of a violent attack of the lungs, with threatening effusion. He seemed, however, very averse to taking medicine, and his parents were unwilling to force his inclination. When I visited him next day nothing had been done since my departure the day before. The medicines lay upon the table where I had left them, and a blister I had applied to the chest, had been removed nearly as soon as I was out of sight. The case was evidently now hopeless, and the boy expired in a few hours.

The only other case that proved fatal was that of a child of about two years old, of Irish parents, poor and ignorant, and exceedingly apt to fancy that whatever a child wanted to eat must be good for it. The original disease was light, and the patient seemed to be passing through it favourably, when, in consequence, as I supposed, of some improper feeding, it was attacked with symptoms of great distress in the bowels, obstinate costiveness, vomiting and fever, followed after a while by contractions and spasms of the flexor muscles, especially of the upper extremities, the thumbs being drawn into the palm, the first joint of the phalanges contracted upon the thumb, the wrist upon the forearm, this upon the arm, the last partly raised from the body. This contraction was progressive, beginning with the most distant joints and proceeding upwards. Although the vomiting was subdued, and some scanty motions obtained from the bowels, the most active remedies failed to make them soluble, and after a few days of extreme apparent suffering the child died in this contracted state, with the arms agitated by slight but almost constant spasms, and with symptoms of oppressed brain.

In almost all the cases of secondary affection that were more than very transient, the urine was much altered, being more or less bloody, or sometimes of a dirty brownish hue.

It seemed as if what is called the morbid diathesis of scarlatina remained in the system about three weeks from the time of the eruption, during which period the patients were liable to secondary affections, however well they might appear, from exposure to cold or errors of diet. This may possibly be accounted for in part from the unusual sensitiveness of the skin, weakened as well as excited by the eruption, and more or less deprived of its cuticle from the desquamation, and from the same state of the mucous membrane lining the internal passages, which membrane, I am fully persuaded from long and attentive observation, partakes fully with the skin in the effects of the disease. The natural tone of these organs requires time for its restoration, which is not completed under the term mentioned. If this passes without farther disturbance, none seems especially to be apprehended.

Charlestown, N. H., December, 1838.

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ART. IX. *Case of Severe Compound Fracture of the Leg, successfully treated.* By ED. M. MILLARD, M. D., of Grand Côteau, La.

DECEMBER 17th, 1836. I was called in haste with my associate, Dr. Robert E. Smith, to visit an Irishman, D——., ætat. about 25, who was severely injured by the fall of a tree whilst felling timber in the woods. Found patient, one hour after accident, removed to the house a few hundred yards distant from the spot where it occurred, in much pain, with his right leg bearing marks of severe contusions both anteriorly and posteriorly, and evidently *smashed*, as he termed it, for a considerable extent. About four inches above the malleolus an external wound was exhibited two inches in length, through which protruded the lower fragment of the tibia, covered with grass and mud, and casting off, upon being cleaned, two spiculæ of bone of considerable dimensions. About five inches below the knee another fracture was evident, upon the least motion, and the intervening space between the two bore manifest marks of being broken into several fragments. It appeared as though the tree had fallen immediately upon the middle portion of the leg, which we were informed was the fact. The extent of the fracture, and the severity of the contusions and lacerations over so large a portion of the member, at once indicated an immediate amputation, which being suggested to the patient, he peremptorily refused to submit to it, declaring that he preferred death to the operation. This left us no other alternative but an attempt to save the limb by the usual course of practice. We, therefore, extended the leg, applied such splints and bandages as were necessary to retain the broken bones in juxtaposition and in a state of quietude, and dressed the external wounds. An antiphlogistic treatment was rigidly enforced, (the patient was an athletic man) not a bad symptom supervened, and he was so far recovered in the eighth week as to be able to remove from place to place by the assistance of crutches. He left the neighbourhood a week or two afterwards, being able to walk with a cane alone.

N. B. I have since understood that a new orifice opened in his leg, from which have issued several small spiculæ of bone, and that he has entirely recovered under the direction of Dr. Hill, of Opelousas.

Grand Côteau, La., Dec. 1838.

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MONOGRAPH.

ARTICLE X. *On Sanguineous Tumours of the Head, which form spontaneously.* (*Cephalæmatoma.*) By E. GEDDINGS, M. D., Professor of Pathology and Medical Jurisprudence in the University of the State of South Carolina.

CEPHALÆMATOMA,* (from κεφαλη, *head*, and αιματωμα, a *bloody tumour*, is a soft fluctuating tumour, containing blood, generally occupying some portion of the scalp, mostly over the parietal bone, often accompanied with hard, prominent, uneven, circumscribed borders, imparting to the touch the semblance of a depression of the corresponding portion of the cranium. Such tumours are seldom observed, except in new-born infants; yet they are now and then met with in children of a more advanced age, and in some rare instances even in adults. The disease is not one of very frequent occurrence; yet when it is considered, that there are few engaged extensively in obstetrical practice, who have not met with it, it is a little remarkable, that it should have received so small a share of the attention of practitioners, and that so few writers on the diseases of infants have noticed it. With only a few exceptions, it has been entirely overlooked, or very imperfectly described, by English, French, and American authors; and although the German physicians have investigated it with more attention, its characters still remain involved in much obscurity. Indeed, so far as our own country is concerned, the works which are in the hands of the profession generally, scarcely contain any notice of it, and as, we doubt not, there are many practitioners who have experienced more or less embarrassment on encountering a disease for the first time, which they had not seen described, we have thought we might be rendering an acceptable service to many, by offering such information on the subject, as we have been able to collect, either from our own observations, or from the labours of those who have made it an object of special inquiry.

1. *History of the disease.*—It is highly probable, that these sanguineous tumours, or abscesses, of the head, were observed by practitioners of an early period, but as they have been generally confounded, until within a few years, either with hernia of the brain, or those fluctuating protuberances of the scalp which are occasioned by external violence, the first clear descriptions of them to be found are of comparatively recent date. It will indeed be observed, by referring to most of the treatises on obstetrics and the diseases of infants of the present day, that when these tumours have been noticed, they have been imputed either to the pressure of the head of the child against some part of the bony walls of the pelvis, or to some injury sustained during delivery. Under these circumstances, it is exceedingly difficult to offer a satisfactory history of the

* Synonymes.—*Cephalæmatoma*, NAEGELE; *Eccymoma capitis*, FEILER and CARUS; *Eccymoma capitis recens natorum cariosum*, PLENK; *Trombus neonatorum*, GŒLIS; *Abscessus capitis sanguineus recens natorum*, PALETTA.

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disease, since from the careless manner in which most of the cases have been described, it would be impossible, after so great a lapse of time, to distinguish between such as were proper examples of the spontaneous sanguineous tumours under consideration, and those which owed their origin to violence, or some other cause. That different conditions were confounded under the appellations of encephalocèle, ecchymosis of the scalp, &c. will be rendered apparent in the course of these observations; and it will likewise be shown, that cases which were unquestionable examples of sanguineous abscess of the head, were described as instances of hernia of the brain. It does not comport with the objects and scope of this paper, to enter upon a minute and elaborate history of the subject, and as we have neither time nor convenience to refer specially to all the accessible sources of information, we shall content ourselves with the references to the early authors made by Professor Naegele, who has investigated the question with much labour and attention, merely premising, that some of them not being at our command, we are unable to decide positively, whether the whole of the notices bear upon the disease in question, or if some of them may not refer to some analogous affection. The following authors are enumerated by Naegele, as having noticed sanguineous abscesses of the scalp:—Aëtius, Valentin, Mauriceau, Preus, Zwinger, Ledran, Trew, Corvinus, Störck, Bœrner, Smellie, Henkel, Gooch, Ferrane, Chopart, Desault, Camper, Baudelocque, Stein, Voigtel, and Prenke. Most of them, however, have merely considered the subject incidentally, as connected with the practice of surgery and obstetrics, or only reported isolated cases, without attempting to give a pathological exposition of the characters of the affection. It should be remarked, moreover, that by many of the individuals whose names have been mentioned, the disease was described under the name of hernia cerebri—an error which has been committed likewise, by many of their successors; and it is highly probable, that even at the present time, the two affections are sometimes confounded.

Sanguineous abscesses have been either described ex professo, or noticed particularly, by Levret,* Siebold,† Michaelis,‡ Naegele,§ Klein,‖ Paletta,¶ Zeller,** Hoere,†† Busch,‡‡ Carus,§§ Osiander,‖‖ Gœlis,¶¶

* Journal de Med. xxxvi. 410. 1772.

† Chirurgische Tagebuch. Nuremberg. 1792, Obs. xvi. xliv.

‡ Ueber eine eigene art von Blutegeschwülsten, in Loder's Jour. B. ii. S. 4. 657. 1799.

§ Erfahrungen und Abhandlungen aus dem gebiete der Krankheiten des weiblichen Geschlechtes. Manheim, 1811. Also in Journal Complimentaire, tome xiii, p. 227. Paris, 1822.

‖ Bemerkungen über bisher angenommene Folgen des sturzes der Kinder auf den Boden bei Schnellen Geburten, Stuttgart, 1817.

¶ Exercitationes Pathologicæ, Pars i. c. x. p. 123. Cap. xii. p. 188. Mediolani, 1822.

** De Cephalæmatomate, seu sanguineo cranii tumore recens natorum; commentatio inauguralis, &c. Heidelberg. 1822. Also an analysis of the same, in Journal Complimentaire, xiii. p. 171. 1822.

†† De tumore cranii sanguineo recens natorum et externo et interno, &c. Berol. 1825. Also Ueber die äussere und innere Blutgeschwulst neugeborner Kinder, in Von Siebold's Journal für Geburtshulfe, bd. iv. Frankfurt, 1825.

‡‡ Ein Beitrag zur aufklärung des wesens der schädelblutegeschwulst neugeborner Kinder. Heidelberger Klinische Annalen, bd. ii. p. 245, 256. 1822.

§§ Lehrbuch der Gynækologie, bd. ii. p. 585. Leipzig, 1828.

‖‖ Handbuch der Entbindungskunst, bd. ii. abth. ii. p. 207. Tubingen, 1821.

¶¶ Praktisches Abhandlungen ueber die Krankhieten des kindlichen Alters, bd. ii.

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Chelius,* Dieffenbach,† Pigné,‡ Velpeau,§ Mombert,‖ Valleix,¶ and several others, who have reported isolated cases. We have the memoirs and observations of most of these individuals now before us, besides a number of particular cases, and from these sources, aided by our own observation, we shall endeavour to condense such a description of the disease, as will serve to put our readers in possession of its most important characters.

2. *Description of the disease.*—It is proper to premise, that we do not propose to consider those sanguineous tumours which depend upon blows or contusions of the head, nor shall we notice some other superficial ones of the scalp, which consist of dilated capillary vessels, and which have received the appellation of aneurism by anastomosis, although we shall advert to a similar kind of tumour of the bone. Our observations will be confined to such affections of this kind as take place spontaneously, and which occur chiefly upon the heads of new-born infants, though not peculiar to them alone.

These tumours are generally discovered at birth, or shortly after, but sometimes not before the expiration of several days. They likewise occur sometimes at a much later period, and have been occasionally met with at the end of several months, or even years. Such instances are, however, exceedingly rare, yet we have seen one in a child nearly two years old, and another in one between the age of five and six. There is generally but a single tumour, but sometimes two or more exist, either in a state of communication with each other, or perfectly isolated.** They are mostly small, slightly prominent, smooth and soft upon the surface, and circumscribed by hard defined borders, which in a majority of cases, when examined with attention, are found hard and elevated, conveying the sensation of a hard bony ledge, surrounding the outline of the tumour, and an intermediate excavation, as though the outer table of the skull had been removed. Sometimes they are more diffused and flattened, and less clearly circumscribed; but even when extensive, the hard prominent border can be perceived, although it is less regular, and frequently presents prolongations and sinuosities running in different directions, occasioned by the unequal power of resistance presented by the integuments at different points, in consequence of which, they yield more readily to the distending force of the blood in some places than in others. In a few instances, however, it is said by Zeller and Naegele, that the hard elevated boundary is either entirely absent, or confined to a portion of the circumference of the tumour. In all cases, when they are properly developed, a distinct fluctuation can be perceived, and by making pressure upon the part, the point of the finger can be brought to bear upon the solid bottom of the cavity. The skin is seldom discoloured, but presents a pale, shining appearance, and in a majority of instances, the part is so little sensible, that considerable pressure may be made over it without occasioning much pain. In some few cases, when the fluctuation above alluded to is not so distinct,

* Handbuch der chirurgie, bd. ii. p. 190. Heidelberg und Leipzig, 1829. Also Heidelberg Klinisch. Anallen, bd. iv.

† Rust's Theoretische praktisches Handbuch der chirurgie. bd. i. p. 120. Berlin, 1830.

‡ Journal Universel et Hebdomadaire. September, 1833.

§ Ibid. October, 1833. Also, These sur les contusions dans tous les organs. Paris, 1833.

‖ Siebold's Journal für Geburtshülfe.

¶ Gazette Médicale de Paris, 13th Sept. 1834. p. 577.

** Naegele, op. cit. Also, Zeller.

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the tumour is soft and spongy to the feel, and difficulty may be experienced in deciding upon its nature.

The size of the tumour is exceedingly variable, and although it sometimes remains stationary from the time it is first observed, it occasionally increases progressively, until it attains a considerable volume. It may not be larger than an ordinary hazlenut; yet in some instances it attains the volume of an orange; and cases have been reported, in which it diffused itself over the whole extent of one of the parietal bones, or even the entire surface of the top of the head. In one of the cases which fell under our observation, the disease was seated over the course of the sagittal suture, and extended itself laterally, to each parietal protuberance; anteriorly, in front of the anterior fontanelle; and posteriorly, beyond the limit of the junction between the sagittal and lambdoidal sutures. Its dimensions, however, as previously suggested, may vary according to the duration of the disease; for although the tumour may exist anterior to the period of birth, as represented by Siebold, Osiander, Michaelis, Pigné and others, and present a well defined indurated border, it sometimes continues to increase for some time afterwards, until it attains a size much beyond that presented by it at the time of its first formation. This, however, can only happen when its barrier is formed by the soft parts, because when, as is sometimes the case, its boundaries are formed by bony deposite, the same facility of extension does not exist. Another circumstance deserving consideration in connection with these tumours is, that in a few instances, a manifest pulsation can be perceived when the finger is applied to the part, showing that the cavity of the tumour communicates with one or more arteries. This phenomenon is, nevertheless, comparatively rare, and has only been noticed by a few individuals. The same thing is sometimes met with in those sanguineous tumours which form in consequence of contusions inflicted upon the head.

It is a little curious, that these tumours are in almost every instance seated over the parietal bones, and in a majority of cases, on the right side. This has been remarked by nearly all the authors who have treated of the subject. Only a few cases have been reported, in which the disease occupied the frontal or occipital regions, and Dieffenbach remarks, that he had never observed one in the temporal region, although Chelius speaks of such an event, and Velpeau observed a case, in which the tumour was spread over the left parietal and temporal, occipital, and the right parietal regions. Pigné has erroneously represented, that they are never found in the course of the sutures. This is contradicted by one of our own cases, in which the tumour formed over the sagittal suture; by one of Naegele's, in which it extended from one parietal region to the other; as well as by Velpeau's case just referred to. A very interesting case is also reported by Michel,* in which a large tumour of this kind, which presented a pulsation isochronous with that of the brain, was seated over the posterior fontanelle, and the right limb of the lambdoidal suture. Indeed, it may be affirmed, that the disease may form upon any portion of the head that is not covered by thick muscles, and even these latter situations cannot be considered as entirely exempt, since we occasionally meet with sanguineous abscesses, which are probably of the same nature, in other parts of the body remote from the head. Palettat has reported many such examples, and others might be referred to.

* Gazette Médicale, 5 Mars, 1833. p. 183. † Op. cit.

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These tumours, when opened, are always found to contain blood. This fluid, however, presents various modifications, according to the extent and duration of the disease, the condition of the soft parts and of the bone, and the intimacy of the connection between the cavity of the tumour, and the small adjacent blood-vessels. It is sometimes perfectly fluid and of a florid colour, as though it had issued fresh from a divided vessel—frequently dark coloured, sometimes sanious, but in a large proportion of cases commingled with more or less serum, by which it is rendered much thinner than natural. Sometimes, indeed, it is so watery, as nearly to resemble serum tinged with the colouring matter of blood; and it is highly probable, that there is a near affinity between these bloody tumours, and some of those of a watery character, which are occasionally found in the same situation. The blood, it is reasonable to infer, becomes more and more deteriorated the longer it is confined, and should the disease be allowed to continue until the bony structures become involved, the fluid will be rendered still more unhealthy, and may acquire an offensive odour. It may even become divested of its sanguineous character, by suppuration taking the place of the hemorrhagic action, and converting the tumour into a purulent abscess. We could cite cases in confirmation of this statement, and amongst others, we might adduce the one reported by Michel, which has been already referred to.

As regards the precise situation of the fluid, and its relations with the component parts of the scalp, and the subjacent bone, much difference of opinion has been expressed. By Osiander, Naegele, Zeller, Carus, Chelius, and Pigné, it is affirmed that the fluid is always deposited between the pericranium and skull; Dieffenbach thinks that it is lodged between the pericranium and the integuments of the scalp, in which opinion some other writers concur; while Velpeau, taking a more correct view of the subject, thinks it may occupy either of these situations, or be even more profoundly situated, in the diploë of the cranium, or between the dura mater and bone, as represented by Hoere. Our own observations induce us to concur fully in this sentiment. In one of the cases which we had an opportunity of witnessing, the pericranium was not detached from the bone, but was much thickened, and the fluid was deposited between it and the aponeurosis of the occipito-frontalis muscle. In another, we are inclined to think that it was superficial to this aponeurosis, and between it and the skin of the scalp. The cases in which it occupies the diploë, or rather commences in that structure, must be exceedingly rare, notwithstanding it was contended by Michaelis, that the disease always depends upon the destruction of the outer table of the bone, and that the collection of blood is a consequence merely of that affection.* He was probably misled in some cases, by the abrupt, prominent, indurated boundary referred to above, which from its uneven hard feel, he mistook for the rugged border of the diseased bone. But although he may have been deceived in this way, there are unquestionably cases of the kind represented by him, and many who have treated of the subject subsequent to his time, have committed an equal error, in denying the existence of such an affection.† Some of them, it is true, have admitted that bloody tumours sometimes form in the diploë, but they affirm that there is no analogy between them

* Loc. cit.

† Loder's Journal fur Chirurgie, bd. ii. p. 660. Jen. 1799. And Hufeland's Journal, bd. iii. p. 81. 1804.

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and the disease under consideration. This sentiment has been expressed by Osiander,* and others have described such an affection of the diploë, as a disease altogether dissimilar in its nature. It differs, it is true, in some particulars, from the common sanguineous abscesses of new-born children, as that disease has been generally described; yet when the pathological characters of the two affections are taken into account, we question much the propriety of considering them as entirely distinct. At any rate, we regard their affinities as sufficiently strong, to entitle them to be grouped under the same head, and we shall, in accordance with this view, and nearly in pursuance of the plan adopted by Velpeau, divide sanguineous abscesses, or tumours of the head, into five orders, according to the depth at which the fluid is situated.

a. *Sanguineous abscesses seated between the skin and the aponeurosis of the scalp.*—When the fluid is deposited between the skin of the scalp and the epicranial aponeurosis, as it is more superficial and least apt to become diffused, it forms the most simple of all the varieties of the disease, and does not involve any serious consequences. Such tumours are of more frequent occurrence than either of the other varieties, and may be easily confounded with others, which form in consequence of the pressure sustained by the head of the child during labour, or of injury inflicted by the forceps or other instruments employed to assist that process. These latter swellings, however, denominated by the German accoucheurs *caput succedaneum*, are very different in their nature, and may be easily distinguished by characters to be pointed out, when we come to speak of the diagnosis of the disease. As the union betweenth integuments of the scalp and the aponeurosis of the occipito-frontalis muscle is exceedingly compact and resistent, when the blood accumulates in this situation, it diffuses itself with great difficulty, and such tumours are consequently, generally small, rounded, prominent, convex upon the surface, and surrounded by a well-defined hard elevated border, such as is felt in those bloody tumours which are so often produced by blows on the head. When the accumulation has existed for some time, the walls of the cavity become very much indurated, and sometimes acquire a consistence almost fibrous in its character. In this state, they do not suppurate readily, and after the bloody fluid has been evacuated, a kind of serous or lymph exhalation, either colourless or of a wine-lee hue, takes place into the cavity. As the deposite of fluid is not in a state of proximity with the bone, these superficial bloody abscesses are not apt to give rise to any serious consequences, and may be dispersed by proper discutient applications, or readily cured, by evacuating their contents. We witnessed a case of this kind a few years ago, in a youth of five or six years old, in consultation with our friend Professor Holbrook, of Charleston. The tumour, which occupied the parietal region, was laid open and covered with a soft poultice, after which it healed from the bottom without any difficulty.

b. *Sanguineous abscesses situated between the aponeurosis of the occipito-frontalis and the pericranium.*—It is more particularly to this variety of the disease, that Naegele and Zeller have appropriated the appellation cephalæmatoma; although, as previously remarked, they affirmed that the fluid is deposited between the pericranium and bone. We are

* Handbuch der Entbindungskunst, bd. ii. abth. 2. p. 214. Also in Abhandlungen und nachrichten, p. 235. 8. beschreiben. tab. 1. fig. 5. Tubingen. 1787.

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inclined, however, to think with Dieffenbach, that the affection to which their description applies, is seated between the aponeurosis of the muscle and the pericranium. There are here several circumstances to impress upon the tumour different characters from those which appertain to the first variety of the disease. The strong aponeurosis of the occipito-frontalis muscle is spread out upon a considerable portion of the top and lateral parts of the head; it is so loosely attached by cellular tissue to the pericranium beneath, as to glide upon it with great freedom; and the proximity of the disease with the surface of the bone, renders it much more liable to give rise to serious consequences, than when it is situated more superficially. In proportion as the blood accumulates beneath the aponeurosis, it is resisted by it in its tendency to protrude towards the surface; but in the direction of the circumference, it dissects up the loose cellular tissue which unites the aponeurosis to the pericranium with great facility, and diffuses itself extensively between the two structures, and over the surface of the head, until its further progress is arrested by a solid barrier, in form of the indurated border already adverted to, which is set up by the process of adhesive inflammation. In consequence of these conditions, such tumours are more flattened and expanded than the preceding, less prominent, and very often less accurately defined; for although they are generally limited by the hard prominent boundary described, this is not constantly the case, and instances sometimes occur, in which, as represented by Naegele and Zeller, no such barrier exists, or if it is present, it is confined to a limited portion of the circumference of the collection, so that the fluid may continue to diffuse itself where it meets with the least resistance, until it becomes spread out, irregularly, over a large extent of the top or lateral part of the head. The interposition of the aponeurosis, likewise, renders the fluctuation more obscure, and when the fluid is allowed to remain too long, the same influence disposes the mischief to extend to the pericranium and bone, and to give rise to caries and exfoliation of the latter, and sometimes to the death of the patient. Before these changes are induced, others take place in the structures which form the immediate walls of the cavity. They become thickened and indurated; undergo, in protracted cases, considerable transformations of texture, acquire an imperfect pseudo-membranous lining, and occasionally take on the character at some points, of fibro-cartilage, or even bone. In a very afflicting case which we had occasion to attend a few years since in consultation with our friend Dr. Steuart, of Baltimore, and which terminated fatally, the abscess had the tendinous aponeurosis of the occipito-frontalis muscle spread over its surface, and was diffused over nearly the whole top of the head. The inner surface presented an uneven mammillary appearance, apparently produced by a compact, yet somewhat spongy, vascular substance, apparently of adventitious development. The cavity was likewise lined by a thin adventitious membrane, such as forms in common abscesses of long standing, upon which the vessels of the new substance just adverted to, seemed to ramify. The aponeurosis could be distinctly traced over the whole surface of the tumour, and to its lower face, the peculiar product which formed the principal part of the walls of the cavity adhered very intimately.

It is this mammillary texture, that in more advanced cases sometimes becomes transformed into a kind of ligamentous, fibro-cartilaginous, or even a bony texture; and cases have been reported, in which the last transformation was observed upon the cranial surface of the cavity at birth, or a

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very short period subsequent, thus corroborating the opinion of Siebold, Osiander, Michaelis, Pigné, and others, that sanguineous tumours, in some cases at least, form anterior to the time of delivery. The hard prominent contour which so generally surrounds the whole circumference of the tumour, is also sometimes of a bony consistence; and if we are to believe the assertions of Michaelis, Naegele, Zeller, and many others, it very generally presents this character. We are inclined to think, however, that their inferences have been drawn more from the sensation imparted to the touch, than from absolute dissections, and that although it is sometimes osseous, it is far more frequently a mere condensation, or consolidation of the adjacent tissues. This is rendered probable by the facility with which it disappears after the tumour has been opened, which would not be the case if it were of an osseous consistence. It should nevertheless be remarked, that the aponeurosis of the occipito-frontalis muscle sometimes becomes ossified, converting it into a thin bony arch, extending over the whole surface of the abscess, which is situated beneath. The only well authenticated case of this kind which we have met with, is one reported by Chelius.* He represents, that the *pericranium*, which was elevated by the tumour, when pressed, imparted to the finger the sensation of an elastic metallic plate, and a manifest feeling of crepitation. The pericranium, which is here represented to have been the seat of the transformation, could not have been separated and elevated from the bone to such an extent, without rupture, consequently, could not have been the part involved in the change. It is much more likely, that the part affected was the tendinous aponeurosis of the muscle, the situation and texture of which would render it much more liable to experience such an alteration. The case, at all events, is one of great interest, since it shows how an affection of this kind might be readily mistaken for a disease having its origin in the diploë of the skull, and separating the outer from the inner table of the bone. It is indeed not improbable, that both Michaelis and Osiander may have been deceived in this manner, in some of the cases which they have reported.

As the pericranium, in this variety of the disease, is interposed between the fluid and the bone, the latter does not generally become much affected, except where the tumour has existed for a long time, and an early opening is not made to evacuate the blood. The protective influence of the pericranium is, indeed, sometimes augmented, by its acquiring increased thickness, and undergoing other changes. Still the outer table of the skull is occasionally affected with necrosis or caries, and if the disease be allowed to continue, the walls of the cranium may be completely perforated, exposing the parts within, and imparting to the disease a fatal character. Michaelis, as has been previously remarked, pretended to have found disease of the bone in all cases; but although he was certainly wrong in making this sweeping inference, several such cases, well authenticated, have been reported by others, some of which, no doubt, were examples of this variety of the affection.

c. *Sanguineous abscesses between the pericranium and the bone.*—It was remarked above, that Osiander, Naegele, Zeller, Carus, Chelius, and Pigné, considered this the proper seat of the abscesses in question in all cases; at least, only a few of them admit that the fluid may be deposited

* Handbuch der Chirurgie, bd. ii. p. 193. Leipsig, 1829, und Heidelberger Klinische Annalen, bd. iv. heft. 4.

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elsewhere. Velpeau, on the contrary, influenced by the intimate connection of the pericranium with the bone, and its liability to rupture, rather than yield to the distending influence of the accumulation, thinks this form of the disease must be exceedingly rare, although he does not deny its existence. We have no doubt that many of the cases supposed by the individuals, whose names have been mentioned, to be of this character, were examples of the variety last described; yet when we consider the numerous minute vessels which pass from the pericranium into the substance of the bone, we can easily conceive how sanguineous deposites may form here, more readily than supposed by Velpeau. Such a variety of the disease would of course be much more formidable than either of the preceding, because of the immediate contact of the fluid with the denuded bone, and the almost inevitable implication of the latter in necrosis or caries in consequence of these relations, especially when the fluid is not early absorbed, or when a timely puncture is not made to allow it to escape. Some of the cases observed by Michaelis may have been of this kind, and it is highly probable, that in many of the examples observed by Paletta, Osiander, Naegele, Zeller, Chelius, Dieffenbach, and others, in which the bone was found diseased, the fluid was deposited between the pericranium and the bone. Still, it does not necessarily follow, that this was the case in all of them; because, the bone may likewise become affected in some of the other varieties of the disease. The extent to which the bone may be involved in such cases, is variable. Sometimes the affection is very slight, consisting, merely, of superficial caries and exfoliation; occasionally the outer table becomes necrosed and is thrown off; and in some rare instances the entire thickness of the skull is detached, and exposes the dura mater beneath. Examples of this kind have been reported by authors, and were it necessary, several which terminated fatally might be referred to. It is evident, that much difficulty would be experienced, during the life of the patient, in distinguishing this variety of the disease from the preceding, or even from that which originates in the diploë. Fortunately, this is not often a matter of much moment so far as the first is concerned; but it may be sometimes important to discriminate between this form of bloody tumour and those which form in the diploë, because, as we shall have occasion to explain, there are some of the latter which it would be unsafe to puncture.

d. *Sanguineous tumours of the diploë of the skull.*—It may admit of a question, how far bloody tumours which are developed in this situation agree in their fundamental characters with those described above. Michaelis affirmed, that the affection which is the special subject of these observations, always consists in a destruction of the outer table of the cranium by necrosis or caries, and that the accumulation of blood beneath the pericranium is a consequence merely of this condition. Osiander likewise, while he objects to the inference of the author just quoted, alludes to a form of bony tumour of the cranium, which is sometimes congenital, in which a morbid growth takes place in the diploë, altering the structure of the outer table, and elevating that portion of the bone, but never destroying it.* Chelius, however, in considering these cases, remarks; that the first have been mistaken by those who have observed them, and that although apparently situated in the diploë of the bone, they in reality occupy the space between it and the pericranium, and what was mistaken for the

* Handbuch der Entbindungskunst, bd. 2, th. 2, p. 214.

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outer table was the pericranium in a state of ossification. We can conceive such a mistake possible, yet there is incontestible evidence that tumours of the kind do sometimes form in the diploë, and give rise to all the consequences which have been attributed to them. Still the question recurs, are they identical in their nature with those which form in the tissues of the scalp, and between them and the bone? They certainly agree in some of their characters, yet in others they present a marked contrast. Both tend to destroy the bone; both may exist at birth or form shortly afterwards; and both are filled with blood; yet when those of the scalp are laid open, they do not continue to bleed after their contents have been discharged, while some of those of the diploë, under the same circumstances, pour out blood so copiously as to endanger or destroy the life of the patient. The organisation of the diploë explains, to a certain extent, this striking peculiarity. The reticulated structure between the two bones is not only supplied abundantly with arteries, but as has been demonstrated by Dupuytren and Breschet, is likewise traversed by numerous veins of large size, which anastomose freely with each other, and form an intricate venous plexus within the bony texture. These vessels communicate freely by numerous small branches through the two tables of the skull, with the vessels of the scalp on the one hand, and on the other with those of the meninges, and also with the great sinuses of the latter. We apprehend, therefore, that most of the bloody tumours which form in the diploë have their origin in a kind of varicose condition of these veins; that in proportion as the tumour increases in size, the tables of the bone are forced asunder or destroyed; that they are, in short, proper erectile, or aneurismal tumours, and owe to this circumstance their faculty of pouring out blood to such an alarming degree when opened. We could refer to numerous cases reported both by the early and recent writers in confirmation of this view; and if all the examples which have been recorded under the appellation of fungus of the dura mater, hernia cerebri, &c. could be carefully analysed, it is probable that many of them would be found to be instances of erectile tumours, or aneurisms developed within the diploë of the skull. This affection of the bones of the head has not, so far as we know, been properly described by writers; but tumours of the kind are not peculiar to this class of bones: they likewise form in the bones of the trunk and extremities, and the records of the science contain numerous examples, the nature of which has not until recently been understood. To this class ought probably to be referred the cases reported by Fabricius Hildanus,* Ruysch,† Pearson,‡ Else,§ Lassus,‖ Freer,¶ Boyer,** Pelletan,†† Scarpa,‡‡ Lallemand,§§ and several by Breschet,‖‖ the last of whom has published a very able memoir on the subject of sanguineous tumours of the bones. Some of the cases reported by Paletta ought,

* Observat. et curat. Chirurg. Cent. ii. Obs. xxvi.
† Observat. Anat. Chir. Observ. lxxxi.
‡ Medical Communications. Vol. xi. p. 95. 1700.
§ Medical Observations and Inquiries. Vol. iii. p. 169. 1769.
‖ Pathologie Chirurgicale, tome i. p. 489.
¶ On Aneurism, p. 28.
** Traité des Maladies Chirurgicales, tome iii.
†† Clinique Chirurgicale, tome ii. p. 14.
‡‡ Sull' Aneurism.
§§ In Breschet Repertoire d'Anat. et de Physiologie, tome ii. p. 137. 1826.
‖‖ Ib. p. 142—178. From this we select the above references.

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perhaps, to be included under the same head,* but as our observations are intended to be confined to those which affect the head only, we shall not discuss this point.

Assuming the proposition, that a majority of those sanguineous tumours which are developed in the diploë, consist of a dilated condition of the venous or arterial plexus of that structure, we can easily comprehend why they bleed so profusely when punctured; the free communication between these veins and the great sinuses of the brain, as well as their intimate connection with numerous other vessels, being amply sufficient to account for this hemorrhage. The great facility, moreover, with which these veins become distended, the enormous extent to which they are capable of being dilated, and the encroachment which they must consequently make, when thus affected, upon the tables of the skull, and after these have been destroyed, upon the scalp, the meninges, and the brain itself, likewise explain the general phenomena of the disease and its fatal tendency. Should the outer table of the cranium first give way, the tumour will protrude outwards, and may attain a very great size, by forcing the pericranium and scalp before it; and in some cases of this kind, especially when the inner table of the bone is likewise destroyed, the tumour will present a pulsation isochronous with that of the brain. A pulsation is, moreover, sometimes perceptible, even though the brain may not be exposed; but this pulsation corresponds with that of the arteries. Should the inner table of the skull give way first, or yield more readily than the external, then the tumour by protruding inwards, will encroach upon the brain and its coverings, and give rise to convulsions, paralysis, and death. Sometimes, indeed, when the walls of the cranium become completely perforated, and the tumour attains a considerable size, it assumes all the appearances of congenital hernia cerebri, may, like that disease, be forced into the cranium by pressure, and cannot be easily distinguished from it.

In some instances, however, the diseased growth does not succeed in breaking up the bony tables, but forces them asunder, and forms for itself a bed in the interstice. An interesting case of this kind is reported by Velpeau, on the authority of Lauth. It was that of a young man, who received a blow with a cane on the parietal region. The immediate effects subsided in a few days, but two months subsequently, he was seized with violent pains at the opposite point, and the trepan was applied without discovering any thing. On examination after death, which speedily followed the operation, a flattened fungous mass, of the size of a nut, was found encysted, as it were, in the diploë corresponding to the point upon which the blow had been received.†

e. *Sanguineous tumours which form between the cranium and dura mater.*—That variety of these tumours which has received the appellation of fungous of the dura mater, has been more particularly described than either of the preceding. Yet there are many affections to which this term is applicable, that do not fall within the scope of our observations, they being of a character entirely different from those tumours which it is our object to describe; nor does it comport with our plan to consider those extravasations of blood which take place in this situation in consequence of violence inflicted upon the head. Velpeau, however, seems to think, that deposites of blood not unfrequently form at this point during labour, and

* See Exercitationes Pathologicæ, Pars ii. 188—213.
† Journal Universel et Hebdomadaire. Octobre, 1833.

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subjoins that he had himself witnessed two examples. If the assertion of Cruveilhier be well founded, that at least one-third of those infants which, healthy and vigorous previous to delivery, die of apoplexy during that process, the opinion of Velpeau would seem to be entitled to confidence.

It is likewise possible for erectile tumours, analogous to those already described, to have their origin in the space between the cranium and dura mater, and it is highly probable, that many of the cases which have been described as examples of fungous of the dura mater, and congenital hernia cerebri, were instances of such erectile tumours. In some rare instances, those tumours have been found in a state of communication with the sinuses of the brain internally, and with the scalp externally, through one or more apertures in the cranium. A very singular case of this kind has been described by Dr. Flint.* It was in a child three weeks old, upon the posterior portion of the head of which, a circumscribed fluctuating tumour was discovered, of the size of a pullet's egg, which, increasing in size, and threatening to rupture, was punctured with a lancet. Blood flowed from the puncture, and in a few minutes it ceased to bleed; but hemorrhage took place from the part at intervals during the ensuing night, which could not be suppressed, and the child died from loss of blood. On laying open the scalp, a dense coagulum of blood was discovered, covering the occipital bone, and thinly spread beneath the expansion of the occipito-frontalis muscle. The middle of the occipital bone was found denuded, rough, and spongy, to the size of a cent piece, and was perforated, immediately under the base of the tumour and opposite the point at which the longitudinal divides to form the two lateral sinuses, by several small apertures, through which blood was made to flow freely by compressing the head. From this it appears, that the tumour was fed, through these openings, by the sinuses of the brain. Dr. Flint thinks, that the disease of the bone existed before the formation of the tumour; but this is not very probable, and it is much more likely that the tumour had its origin in a varicose state of the blood-vessels, which traversing the bone, impressed upon it the alterations presented by it after death.

A case is also described by Busch, which was observed in a child that had been some time dead and was delivered with the forceps. Situated over the occipital region was a bluish coloured bloody tumour, which, when it was opened, was found to communicate with the sinuses of the brain.† One is likewise reported by Hoere,‡ in which there were two tumours; one internal between the dura mater and the bone, the other between the latter and the pericranium, with a diseased condition of the intermediate portion of the cranium. The internal tumour was of the size of a pigeon's egg, and had formed for itself a kind of depression in the corresponding portion of the brain. The internal table of the bone, opposite to it, was diseased, and destroyed to some extent, but the process of reparation had commenced. The outer table was entire, and unaltered.

These are the principal characters and varieties of this peculiar form of disease. The influence exercised by it over the general health must of course be variable, according to the condition of the tumour, its relations with the adjacent parts, and the susceptibility of the organisation. Very

* New England Journal of Medicine and Surgery. Vol. ix. p. 112. 1820.

† Heidelberger Klinische Anallen, bd. ii. p. 245.

‡ De tumore cranii recens natorum sanguineo et externo et interno, &c. Berol. 1824.

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generally, there is little or no constitutional disturbance observed during the first stages of the disease; but after the tumour has continued for some time, the child is apt to become pallid, feeble, and heavy; it loses its natural sprightliness; has its digestive organs more or less disturbed; is restless and uneasy, especially during sleep; and in some cases, is affected with flushing of the face, and irregular febrile exacerbations. Gœlis remarks, that even in a recent case, he found the child affected with a kind of confusion or stupor; and it not unfrequently happens, after the disease has made considerable progress, that various nervous symptoms make their appearance, which arise either from the direct influence of the tumour on the brain, or from irritation excited by its being reflected upon the nervous centres. These symptoms may vary, from slight twitchings to violent convulsions, or even paralysis. Such cases are generally attended with active febrile excitement, associated with the phenomena of arachnitis or inflammation of the brain. It should be remarked, however, that these phenomena are seldom or never observed until towards the last stages of the disease, and it is likewise only at this period, that evidences of compression of the brain, and inflammation of the dura mater become apparent; these symptoms owing their existence in such cases to the diseased changes which take place in the bone and the adjacent structures. In some instances, nevertheless, the ravages of the affection are more insidious in their march, creating but little disturbance until a considerable portion of the bone has become destroyed, and allowing extensive perforation of the skull to be produced before death takes place. Paletta, Naegele, Osiander, Kopp and others have observed cases of this kind. But while some examples of the disease are attended with some or most of these symptoms, there are others, which, until they are far advanced, give rise to no uneasiness or derangement, either general or local. Yet it may be laid down as a general rule, that whatever may be the condition of the patient during the first stages of the disease, the constant tendency is to a fatal termination, if the fluid be not absorbed, or evacuated by art.

3. *Causes and nature of the disease.*—Those who have had occasion to observe sanguineous tumours of the head of newborn infants, have found it difficult to assign any satisfactory cause for their development. From some characters which they possess, in common with those bloody tumours or ecchymoses which form in the same situation in consequence of contusions, writers for a long time adopted the opinion that they owe their origin to some injury sustained by the head of the child during labour, either from pressure within the straits of the pelvis, from the contusion occasioned by the forceps or vectis, or some analogous cause. This opinion has been perpetuated by the neglect of many to discriminate between the proper cephalæmatoma, or spontaneous bloody tumour, described by several of the German authors, and those which are in reality only examples of ecchymosis produced by violence. This cause has been assigned by several respectable practitioners, amongst whom Dieffenbach enumerates Becker, Carus, Capuron, Wendt, and Osiander, and we may add to this list Velpeau and several others of high respectability. There are several circumstances which invalidate such a conclusion.

The tumours in question are not oftener met with in difficult labours, and those in which instruments are employed, than they are after easy and quick deliveries. Palletta* remarks, that he had never seen them after

* Op. cit. 123.

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difficult labours. Naegele, who observed seventeen cases in the course of twenty years, declares, that in a large proportion of them the labour was easy, and the tumours occupied those parts of the head that was least liable to be compressed or injured in its passage through the pelvis. He observed, besides, one case, in which the child was delivered by the feet, and others have been reported which occurred in breech cases. Siebold never saw them after difficult labours; Baudelocque seldom, and such, likewise, is represented to have been the result of the experience of Feiller, Hoere, Michaelis, and Schmidt.* To this it may be added, that bloody tumours of a similar character occasionally form on the head of children at a more advanced age, and sometimes even in the adult, when no injury whatever has been inflicted. In neither of the cases which we have had an opportunity to observe, could the disease be referred to this cause, inasmuch as after the strictest inquiry it could not be ascertained that the subjects of them had received either blow or contusion, or any other injury upon the head. It is besides known, that sanguineous abscesses occasionally form in other parts of the body not exposed to the influence of violence. Paletta has reported many such examples, and several others might be referred to, which have been published by different individuals.

The facts prove conclusively that the disease cannot be properly attributed to the cause referred to above. Injuries of the kind alluded to may unquestionably give rise to extravasation of blood in the scalp, but it will be found on examination, that such tumours differ essentially from those which form the subject of these observations. They are attended with more or less discoloration of the skin; they disappear in the course of a few hours, and are not attended with the hard elevated boundary which generally circumscribes sanguineous abscesses of the head. That the long continued resting of some part of the head of the child upon the brim of the pelvis, before labour comes on, may sometimes predispose to the affection, we will not deny, yet this is a different question from that under discussion.

The hypothesis of Michaelis already alluded to, that the disease has its origin in the destruction of the outer table of the cranium, and that the collection of blood is a consequence merely of that affection, is refuted by so many facts, that it cannot be necessary to do more than advert to it. It should nevertheless be remarked, that when the tumour has its origin in the diploë, no collection of blood takes place in the scalp, until this destruction of the outer table is accomplished. But while this is admitted, it only proves, that the injury of the bone is a consequence and not the cause of the disease. Nor is the conjecture of Baudelocque, that the extravasation of blood is a salutary act, the effect of which is to protect the brain from dangerous congestion or apoplexy, entitled to more confidence. Naegele at one time attributed the origin of the disease to a varicose state of the emissary vessels of the cranium, in consequence of which they become ruptured during parturition; but he afterwards abandoned this opinion as untenable. Pigné also seems to think they are owing to a rupture of blood-vessels, but he affirms that this rupture takes place spontaneously. In proof of this, he appeals to the authority of Baudelocque and Cruveilhier, who remark, that fœtuses are often destroyed by a vessel giving way within the cranium, even before the period of delivery.

Amidst these conflicting opinions it is exceedingly difficult, without

* Pigné, Journal Hebdomadaire, Sept. 1833.

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more positive data than we possess, to arrive at any very satisfactory conclusion.

4. *Diagnosis.*—The affections with which these tumours are most frequently confounded are, the extravasations of blood in the integuments of the cranium, or the puffy ecchymosis of those parts, which form in consequence of injury sustained during labour, and which the Germans have denominated *caput succedaneum.* It is by neglecting to distinguish them that many writers have been led into the error of attributing them all to contusions inflicted upon the head of the child in the act of delivery. A proper attention to the symptoms peculiar to the two affections will render it easy to avoid mistaking one for the other. In the *caput succedaneum*, or tumours which proceed from contusion, there is a kind of infiltration of blood mixed with serum; the tumour is diffused, presents a dark livid colour; is œdematous and pits on pressure, is devoid of the well defined border which circumscribes the proper sanguineous abscess, and does not present the pulsation which sometimes exists in that disease. In some cases, however, especially when the fluid is deposited between the aponeurosis and the pericranium, or between the latter and the bone, the diagnosis will be more difficult. Still, the surrounding œdema, the absence of the prominent defining barrier, the discoloration of the skin, &c. will generally furnish sufficient data to prevent, in a great degree, an erroneous conclusion. The same marks will serve to distinguish sanguineous tumours from those containing water, which sometimes form in the same situation. Purulent abscesses may be generally distinguished by the inflammation, redness, great tenderness, and other symptoms with which they are almost always associated.

If in accordance with the plan we have adopted, bloody tumours of the scalp, and those of the diploë and parts beneath, be grouped together, it is probable that the same explanation will not hold good in reference to the formation of the whole of them. At least, there may be a slight difference in the pathological condition of the superficial and deep-seated tumours—although it may not be sufficiently great to constitute them totally distinct affections. And it may be remarked, that those which form in the diploë cannot well take place in the fœtal head, inasmuch as at that early period of life the two tables of the cranium are so close to each other that the diploë scarcely exists. Whatever may be the difference in the seat of the disease, there can be but little question that it consists primarily in a morbid condition of the capillary blood-vessels, and the cellular tissue through which they ramify. All who are conversant with the laws of the animal economy are aware, that under the influence of certain grades and modifications of irritation, the vessels pour out blood, instead of coagulable lymph, serum, pus, or any of the other products which they deposite under different degrees of the same process. It is difficult to determine, however, whether the collections in question have their origin in this manner, or whether the radicles of the veins, at the points at which the arteries inosculate with them, do not first assume a varicose condition, such as they present in erectile tumours, and afterwards give way, extravasating their contents in the meshes of the cellular tissue. We are inclined, from the general phenomena of the disease, to infer that both these explanations are correct, though applicable to different cases. The first is certainly the most rational, when applied to those tumours which are superficial; yet there are others in which it seems incompetent to explain all the phenomena. This is especially true of those which form between the pericra-

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nium and bone, and in the diploë of the cranium. It has been remarked above, that in some cases a considerable pulsation or thrill can be felt in the tumour during its early stages, which disappears as the disease progresses. This cannot be very well explained upon the supposition of a mere hemorrhagic action of the capillary vessels, but is in every respect analogous with the phenomena presented by erectile tumours. The reason why the pulsation disappears at a later period probably is, that the delicate vessels being over distended, their tunics give way, and extravasate their blood, and afterwards undergo such changes as to destroy their pulsation. Such dilatations we conceive may take place in either the arterial or venous portion of the anastomosing vessels, or in both, precisely as the same thing is observed in erectile tumours in other parts of the body. But if this explanation is probable as regards those tumours which form exterior to the cranium, it is unquestionable when applied to such as are developed in the diploë. The cases reported by Flint, Hoere, and Busch, which have been already referred to, were probably of this kind, and the very valuable memoir of Breschet, previously quoted, contains numerous examples of erectile tumours or aneurisms, affecting other bones. Here the vessels are more protected by the bony casement in which they are lodged, the process of dilatation goes on more tardily, and they do not so soon give way. Hence, such tumours, when opened, generally bleed profusely, because the affected vessels have not yet had time to undergo those changes which are so speedily effected in soft parts, and which disqualify them, in the latter situation, from pouring out blood so freely.

Be this as it may, the cellular tissue also undergoes important modifications. It is destroyed, or has its meshes forced asunder at the point at which the extravasation takes place, while in the vicinity, coagulable lymph is deposited in its areolar arrangement, and becoming organised, sets up a barrier against the diffusion of the fluid, which forms the indurated circle or boundary already alluded to. This is precisely what takes place in common purulent abscesses, and it will be found, on examining the cavity of one of these bloody tumours which has existed for some time, that it, like a common abscess, is lined by a complete adventitious pellicle or membrane, which is either very vascular itself, or has a complex intertexture of minute blood-vessels ramifying exterior to it. This membrane may pour out blood, or serum, or pus, according to the degree of irritation which may happen to exist in the walls of the tumour; and all these fluids may be deposited by it in the course of the disease. Hence, when such tumour is laid open shortly after it has formed, it generally discharges pure blood; at a later period blood and serum will often be evacuated, and if it be allowed to remain unopened, it may become the seat of a purulent deposite, as in Michel's case, to which we have referred above.

Assuming these as the pathological conditions of the disease, it is not easy to explain the causes which dispose the parts to take on such changes or modifications of action. It is possible that the resting of the head of the child upon the bony parts of the brim of the pelvis, during the last weeks of gestation, may be the cause in some cases; and that in others, the pressure it experiences during labour may excite sufficient irritation to produce the disease. Many other circumstances may have some instrumentality, but as any remarks we could make in regard to them would be purely conjectural, we shall not enumerate them.

Much more difficulty will be experienced in distinguishing sanguineous tumours from congenital encephalocele, or hernia of the brain. Owing to

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the uncertainty of the diagnosis between these two affections, they have been often confounded, more especially by some of the earlier writers on the latter of these two diseases, who described cases as examples of encephalocele, which, from their own representation, we cannot avoid concluding were nothing more than instances of sanguineous abscess. This mistake was committed, as Naegele and others have remarked, by Le Dran and several of his successors, especially Trew, a writer in the Gentleman's Magazine, Detharding, Chemin, Corvinus, Gaspard, Siebold, Held, Sallenneuve, Thiernig, Ohme, Breiting, Richter, Rosen de Rosenstein, Bernstein, Fleisch, Plenk, Schmalz, Henke, &c. A reference to all these authorities will show that they considered the parietal region as the most common seat of congenital encephalocele, while it is well known to all practitioners of the present day, who are conversant with such affections, that they are seldom developed, except in the course of the sutures, at the anterior or posterior fontanelle, or in the situation of some of those points which, during the first periods of the ossification of the cranium, are not supplied with bone. This fact then, together with one adverted to in a preceding part of these observations, that sanguineous abscesses are developed by far more frequently over the parietal bone than upon any other part of the head, renders it highly probable that a very large proportion of the cases considered by writers as examples of what they called *lateral* congenital encephalocele, were nothing more than sanguineous tumours of the parietal region.

The difference observed in the locality of the two affections may afford some assistance in distinguishing them, but cannot be regarded as affording sufficient grounds for a positive diagnosis, since, as has been remarked, sanguineous tumours are sometimes developed in the course of the sutures, and upon other points which are liable to hernia of the brain. Far better criteria may be deduced from the phenomena furnished by handling the tumour, from the condition of its surrounding boundary, &c. Both are soft and spongy to the feel, and impart to the touch the sensation of a depression or defect of the corresponding portion of the cranium. Both are likewise often attended with pulsations which are isochronous with those of the heart; and in the one, as in the other, a hard well-defined border can be generally felt, which surrounds the entire circumference of the tumour. Thus far they seem to agree in most of their characters; but if these phenomena be carefully analysed, it will be found that there are many points of difference. Thus, when pressure is made on a congenital encephalocele, the tumour can be often forced down through the opening by which it protrudes through the cranium, upon the substance of the brain; but so soon as this is done, the individual will be affected with vertigo, dimness of vision, loss of consciousness, or even convulsions. Sanguineous tumours cannot be made to disappear by this procedure, nor do they, when compressed, give rise to the symptoms alluded to. If the march of the disease be carefully observed, there can be no danger of the hard prominent boundary leading to an erroneous diagnosis, inasmuch as in encephalocele it must always exist before the tumour can protrude—the destruction of the entire thickness of the bone being necessary to allow this event to take place; whereas in the case of the other affection, the tumour always forms first, and the hard boundary, or as it has been generally called, the bony circle, is only developed in consequence of the influence exercised subsequently upon the adjacent portion of the bone. Besides, when pressure is made upon the centre of the tumour, if it be encephalocele, the finger will

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pass down without meeting with any solid resistance, while in cases of sanguineous tumours, it is soon arrested by the solid rough surface of the bone. Although pulsation is a character common to both affections, it is feeble in sanguineous tumours, and is only present during the earliest periods of their existence, whereas in encephalocele, it is much stronger, and never entirely disappears.

There can seldom be much difficulty in distinguishing sanguineous tumours from fungus of the dura mater, the latter being destitute of fluctuation, and when forcibly compressed, giving rise to those symptoms which indicate pressure on the brain. Erectile tumours, however, developed either upon this membrane, within the diploë of the cranium, or between the bone and the pericranium, cannot be so easily distinguished, either from simple bloody abscesses, or common fungus of the dura mater.

5. *Treatment.*—The treatment of sanguineous tumours of the head may be attempted by two different methods. The first has for its object the dispersion of the tumour by promoting the absorption of its contents; the second, the evacuation of the blood by puncture or incision.

The first method should always be fully tried previously to resorting to the second. Experience has proved satisfactorily, that a large proportion of these tumours will either disappear spontaneously, after the lapse of some time, or may be dispersed by proper local treatment; and as long as any hope of obtaining this result remains, an operation should not be performed. Nearly all writers on the subject have reported many such cases, and in the memoir of Zeller already referred to, a great number will be found. Out of seven cases observed by Beyerle, six were cured in a few days by aromatic vinous fomentations, and it was only necessary to open the tumour in one. Even tumours of very large size may be sometimes dispersed. Zipp reports a striking example: He was called to visit an infant, aged four days, upon the left parietal region of which he found a cephalæmatomatous tumour, as large as an adult fist. It was discovered on the day of delivery, from which time it had continued to increase, but did not seem to affect the health of the child. The mother was healthy, and had had an easy delivery. By means of frictions with aromatic substances, practised night and morning, the tumour was completely dispersed in about four weeks.*

The choice of applications should be regulated by the condition of the part affected, and of the general system. When the child is vigorous, and the scalp, as well as the constitution in general, highly susceptible, antiphlogistics should be preferred. It may be necessary sometimes to apply leeches, and even to repeat them according to circumstances; and in all such cases, cold antiphlogistic discutient lotions may be employed with more or less advantage. The best of these will be the liquor plumbi subacetatis, vinegar largely diluted with water, a solution of either the acetate or muriate of ammonia, or any of the ordinary evaporating lotions. The hair should be closely shaved, and a fine fold of linen kept applied to it constantly, wet with the preparation employed. Ice may likewise be occasionally resorted to, but is not often so efficacious as the remedies just enumerated. Indeed most of the German authorities seem to think, that applications of a somewhat exciting character should be generally preferred, their stimulating properties being thought necessary to promote the absorption of the fluid, and produce healthy action in

* Pigné, loc. cit. p. 483.

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the part. Hence, they recommend aromatic vinous and spirituous infusions and decoctions, stimulating lotions and unguents, and other articles of a kindred character, either applied lightly to the scalp or administered in form of frictions. When there is great languor and deficiency of energy in the tumour, and in the system generally, such applications are certainly demanded; yet it must not be concealed, that under an opposite state of affairs, they may prove highly mischievous. We are inclined to think, that the application of the warm decoction of oak bark, cinchona, &c. or frictions with mercurial ointment, which have been recommended by Dieffenbach, can seldom or never be admissible. Nor do we think that it will be generally safe to keep up pressure by means of a compress and bandage as recommended by Chelius, although we apprehend that cases do occasionally occur, in which it may be both safe and beneficial.

These means, properly employed, will often disperse the tumour, and effect a perfect cure of the disease. Yet they will sometimes fail, and it will then become necessary to adopt a different course.

It is extremely difficult to decide how far the treatment can be safely confided to those means, the object of which is to obtain the discussion of the tumour, inasmuch as in some cases, the disease has been allowed to continue for weeks or even months, without giving rise to any very serious consequences, while in others, the cranium has become affected with necrosis or caries after the lapse of a very short period. This being the case, much injury may sometimes result from relying too long upon discutient applications, and neglecting to evacuate the fluid by a proper opening. Zeller reports a case corroborative of this principle. A child was born with a very large sanguineous tumour seated upon the left parietal region, the character of which was not understood by the surgeon in attendance, and it was consequently left to the unassisted efforts of nature. The tumour continued to increase in size, became painful, the health of the child suffered considerably, and after the lapse of some weeks, death took place. The bone was found carious, and perforated by a number of small foramina, which traversed its entire thickness.* In order not to incur the risk of these mischievous consequences, it will be advisable, when the ordinary local applications have been employed ineffectually, for eight, ten or fourteen days, to puncture the tumour and evacuate its contents, lest by suffering the fluid to remain too long in a state of confinement, it may occasion disease of the bone, or the health of the child may become endangered by the influence of the disease upon the general system. Upon this point, then, a perfect unanimity of sentiment exists, amongst all who have written on the subject. Some have even advised that an opening should be made as soon as the tumour is discovered, and Osiander thought it should never be delayed beyond twenty-four or forty-eight hours. But to this practice there are two objections. One is, that there are many cases that disappear spontaneously, or may be cured by local applications; the other, that the parts are more vascular during the first periods of the disease, the blood more fluid, and hemorrhage is more apt to take place from the cavity.

There is some difference of opinion as regards the manner in which the contents of the tumour should be evacuated; some giving the preference to the seton, some to puncture and incision, while others advise the caus-

* Pigné, loc. cit. p. 484.

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tic. The seton was long since recommended by Moscati; and Paletta advocates its employment in preference to all the other methods. He represents, that it is unsafe to open such tumours by a free incision, but that when they are transfixed by a seton, a cure is easily accomplished without any bad consequences. Notwithstanding this authority, the practice has been abandoned, and has been by some writers very justly condemned.

Gœlis advises a stick of caustic to be rubbed upon the surface of the tumour, with the view of promoting suppuration, and exciting the requisite degree of action in the parts. The same plan has been recommended by Schmidt. Of all the means proposed, we hold this to be the most objectionable, and we doubt not, that if generally pursued, it would often occasion serious mischief. In this opinion we are supported by all the best authorities, who, with great unanimity, concur in condemning such a procedure.

Osiander recommends an incision of an inch in length, and down to the bone, to be made with a convex bistoury, in a direction transverse to the course of the ossific radii of the parietal bone. The object of the last rule is, to avoid the danger of inflicting injury upon the brain, by the knife penetrating between these rays, which it might do, if the incision should be made parallel with them. For the same reason, he directs that a lancet, a sharp pointed bistoury, or a trocar, should never be employed for such a purpose, because there is a great risk of puncturing the brain, on account of the extreme thinness of the bone. In prudent hands these precautions can scarcely be necessary, no do we think that any important advantages can be gained by making so extensive an opening. The crucial incision recommended by some can never be necessary, and ought not to be practised.

The best plan is, unquestionably, to make a puncture of an adequate size, at the most dependent point, to allow the contents of the tumour to escape. This is recommended by Naegele, Zeller, Chelius, Dieffenbach, and the best authorities on the subject, and while it secures all that can be gained by making an opening, it is not liable to the objections which apply to the other methods. There are, nevertheless, circumstances, in which it will be necessary to depart from this rule. Thus when the contents of the tumour have been evacuated, a probe should be introduced through the orifice, in order to explore the condition of the bone. If found healthy, a small tent of lint should be introduced into the puncture, to prevent it from closing until the fluid ceases to accumulate within. If the bone be found denuded, rough, and carious, a grooved director should be introduced, upon which the tumour may be freely laid open, if not too extensive; because it will be in vain to attempt to heal it without adopting this precaution. After an opening of sufficient extent has been made, the bottom of the wound may be dressed with a pledget of lint spread with simple cerate, or any appropriate digestive ointment, which should be secured by a compress and bandage, and renewed as often as necessity may require. In ordinary cases, where only a puncture is made, a light compress should be laid over the part, and confined by an appropriate bandage.

It generally happens, after the first evacuation of the tumour, that more or less accumulation takes place. Under these circumstances, the tent of lint should be withdrawn from the puncture, in order to allow the fluid to escape, and if adhesions have formed to such an extent as to prevent it

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from flowing, they may be broken up with the point of a probe. After the first evacuation, the blood becomes more and more serous, and is finally supplanted by a kind of watery fluid, of a wine-lee colour, or suppuration takes place, and a small quantity of pus is discharged. In many cases, however, the walls of the cavity gradually adhere, without any pus being formed.

The applications to be made to the part, subsequent to puncture, must be suggested by its condition. Should inflammation and tenderness ensue, they must be combatted by cooling anodyne lotions, the application of leeches, and the ordinary antiphlogistic remedies. But where, as is sometimes the case, the tumour remains inactive, and evinces no disposition to heal, its powers must be invigorated by appropriate applications. The Germans generally prefer, for this purpose, warm fomentations of an infusion of aromatic plants in wine, an infusion of chamomile, a decoction of bark, &c. Dieffenbach proposes, also, to cover it at night with an ointment composed of from 4 to 6 parts *unguent. rosat.* and one part *unguent. mezerei.* spread on a light pledget of fine lint. It has even been proposed, when the parts are very indolent, to throw stimulating injections into the cavity, in order to excite adhesive inflammation; and it was partly with a similar view, that Paletta was induced to prefer the seton as a means of opening these tumours. A case has been reported by Lobstein, in which this practice was successfully instituted. The tumour was as large as a pullet's egg, and occupied the left parietal region. Having failed in his attempts to disperse it, the contents were evacuated by a puncture, and stimulating injections were thrown in through the aperture. Slight pressure was afterwards kept up, and a cure was accomplished in a few days.* Cases may occur to demand this practice; yet it should be resorted to with great caution.

A judicious application of these means will generally conduct the case to a favourable issue, without the occurrence of any unpleasant symptoms. The prognosis is indeed generally considered favourable in most cases of this affection, and is seldom otherwise, except where the disease has been allowed, by too long delay, to inflict extensive ravages upon the bone. Most writers, too, represent the opening of such tumours as perfectly exempt from danger, yet we could cite cases in which it was followed by death, even though the bone was not affected. Gœlis, amongst others, speaks of such an occurrence; and Braun reports a case, in which, after a few days, the child was seized with fever and died. In the course of the foregoing remarks, we alluded to a case which a few years since came under our care, conjointly with Dr. Steuart. It was the child of a medical friend, and differed from the generality of such cases in the circumstance, that the subject was about two years old. The tumour was large, and notwithstanding various means were employed to disperse it, continued to increase in size, until it was thought it would not be prudent to refrain longer from opening it. A puncture was accordingly made at one of its most dependent points, and a considerable quantity of watery blood evacuated. As the bone was found to be healthy, a small tent was introduced to prevent the aperture from closing, and cold applications directed to be made to the head. On the second day, the fluid which had accumulated was again evacuated, and the same course was continued. The child, however, became feverish, and was finally seized with violent convulsions and

*Pigné, loc. cit. p. 486.

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other evidences of meningeal and nervous irritation, which, notwithstanding the free abstraction of blood, both from the arm and by leeches, the use of cathartics, cold to the head, blisters, &c. continued to recur until death took place.

As regards the treatment of those tumours which sometimes form in the diploë, or within the cranium itself, especially such as are of an erectile character, not much can be done towards effecting a cure. In a majority of instances, if they were to be opened, a fatal hemorrhage would be apt to ensue, particularly where the whole thickness of the cranium is destroyed, so as to deprive us of the advantages of compression. Still we are inclined to think, that in such cases as those reported by Flint and Hoere, and, indeed, in all cases in which the inner table of the skull is entire, if we possessed any positive means of distinguishing them from others, an opening might be safely made, and if alarming hemorrhage should follow, that it might be effectually commanded by a properly adjusted graduated compress. The enlarged vessels would then become obliterated, and the cavity might be healed up by granulation. But before such an operation is resorted to, there should be a certainty that the inner table of the bone is not destroyed, otherwise there will be no solid point, against which pressure can be made, and we should incur the danger of fatal hemorrhage.

This may be regarded as a general summary of our knowledge in regard to these sanguineous tumours of the head. It will be observed that their pathology is still involved in much obscurity, and we are not certain that we have added any thing to render it more intelligible. It may, indeed, be thought that we have erred, in grouping under this head, erectile tumours of the diploë, and parts beneath. We are not satisfied that we have acted with strict propriety in doing so, but we were anxious to direct more attention to them than they have generally received. This, in fact, has been our chief motive for publishing the paper. We are persuaded that most of our readers are not in possession of much of the published information which has a bearing on the subject, especially, as most of the English works scarcely contain any notice of the disease. Hence, if we have not added any thing to increase our knowledge of its pathology or treatment, we may perhaps have rendered them a slight service, by giving them a digest of what others have advanced upon these topics.

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REVIEWS.

ART. XI. *Lectures on the Nervous System and its Diseases.* By MARSHALL HALL, M. D. F. R. S. &c. &c. London: 1838.

FEW subjects have of late excited so much controversy, as that of the claims of Dr. Marshall Hall, as the original discoverer of certain new laws in the Physiology of the Nervous System.

We propose to consider, in the first place, what these discoveries are; 2dly, their value; 3dly, the claims of Marshall Hall as discoverer; and 4thly, their application in pathology.

Dr. Hall appears to found his claims not so much upon the institution of a series of new experiments, as upon the inferences he has drawn from the experiments of others, and the perception of truths and results, to which their vision did not extend. It may be remarked, in passing, that such a use of their labours was particularly calculated to irritate those living physiologists, who thus saw themselves deprived of the honour of a brilliant discovery, which they had overlooked, when it lay within their grasp. Hence, it might naturally be expected that they would be inclined either to depreciate the value of the discovery, or, allowing its value, to claim it for themselves.

Dr. Hall begins his lectures by taking a view of the discoveries of other physiologists in regard to the cerebral division of the nervous system. To Sir Charles Bell, he attributes the honour of the *second* discovery in physiology, that of Harvey being of course the first. Mr. Shaw and Mr. Mayo in England, Sign. Bellingeri in Italy, and M. Magendie in France, he alludes to, as having pursued the inquiries which Bell originated.

Bell relates an experiment, in which a rabbit was struck behind the ear so as to deprive it of sensibility, and the spinal marrow exposed. On irritating the posterior roots, there was no motion produced in any part of the muscular frame, but on irritating the anterior roots, there was a corresponding motion of the muscles to which the nerve was distributed. This proved that the *anterior* roots had the power of exciting motion. But Sir Charles Bell made no distinction between *excited* and *voluntary* motion. Müller divided three posterior roots on the left side in a frog, and on the right side all three anterior roots; sensation in the left leg, and motion in the right, were destroyed. On cutting off the right foot, great pain was evinced by motion in all the other parts of the body, while the leg in which the pain was seated, remained motionless. But on cutting off the left foot which retained the power of motion but not of sensation, no pain was evinced. "These experiments," says Müller, "place beyond all doubt the truth of Bell's doctrine." Sir Charles Bell associated the posterior and anterior columns of the spinal marrow, with the posterior and anterior roots of the trifacial and spinal nerves, as sentient and volun

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tary respectively. Müller first *traced* and *figured* the third column in the entire length of the nervous system, and professor Grant first (in 1832,) assigned to it its especial *motor* function.

Dr. Hall confirmed by experiment the reasoning of Professor Grant. He took a lobster and laid bare the nervous columns. He first stimulated one of the aganglionic nerves. The muscles to which it was distributed, and *they alone* were contracted. He then stimulated a ganglionic nerve. Muscles both *anterior* and *posterior* to the parts stimulated, were excited into combined action.

According to the present state of knowledge of the *cerebral* division of the nervous system it comprehends,

I. Sentient nerves leading to the posterior roots of the trifacial and spinal nerves, and the posterior columns of the spinal marow.

II. The cerebrum the centre of the system.

III. The voluntary nerves issuing from the anterior columns of the spinal marrow, and the anterior roots of the trifacial and spinal nerves.

I. *Of the True Spinal or Excito-Motory System.* This is the system to which the discoveries of Marshall Hall appertain. He avails himself of an old and known principle, the *vis nervosa* of Haller, which has been found to exist in the tubercula quadrigemina, spinal marrow and the motor nerves—excluding the brain and nerves of sense, the olfactory, optic, and acoustic nerves—and in the anterior, to the exclusion of the posterior roots of the spinal nerves. Physiologists have supposed that this principle acts *only* in the direction of the branches or fibres of nerves, proceeding *from* their source in the nervous centres, *to* their destination in the muscular system. Haller describes the condition of the nerves which excite motion in the muscular system, as proceeding from *above*, or from the cerebrum or medulla spinalis *downwards* towards the termination of the nerves. Müller lays down certain laws; 1st. That the motor power acts only in the direction of the primitive nervous fibres, and never backwards. 2d. The mechanical or galvanic irritation of a part of the nervous trunk does not excite the motor power of the whole nerve, but only of the isolated part. 3d. A spinal nerve, which passes into a plexus, and assists with other spinal nerves in the formation of a large nervous trunk, does not impart its motor power to the whole of that trunk; but only to the fibres which it affords in its course from that trunk to its branches. 4th. All nervous fibres act in an isolated manner from the trunk of a nerve, to its ultimate branches. If the spinal marrow be stimulated, all the muscles which receive nerves from *below* the part of the spinal marrow stimulated, are thrown into action.

In the experiments of Redi and Whytt, it was shown that a tortoise, or a frog deprived of its head, would for a considerable time after, move its feet when pricked or otherwise stimulated. Sir G. Blane, obtained the same result with a kitten. When the spinal marrow was cut through between the *lumbar vertebræ*, and the *os sacrum*, the posterior extremities lost their irritability, but the tail, the part below it, retained it. In an acephalous monster, the like *phenomena* were observable. Similar results were obtained by Legallois and Mayo in different experiments. According to Dr. Hall, Sir G. Blane was the only person who perceived that the movements described were different from those produced by sensation and volition. *No one*, he says, has imagined that these motions proceed from the *vis nervosa* of Haller, which he proceeds to demonstrate, but which acts in

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directions at variance with his opinions, and with the laws laid down by Professor Müller. This, according to Dr. Hall, was the state of science on this subject, when he began his investigations. It consisted of mere experiments, mere facts untraced to any just principle of action, unapplied to vital phenomena. It was necessary in the first place, to confute the opinion of Haller, and the laws of Müller, relative to the vis nervosa or motoria. This was done by the following experiment.

"The head of a turtle being removed, to remove sensation, and volition, I denuded and divided the spinal marrow; I then irritated the lower end of the upper portion by a needle, the forceps, and galvanism; I produced motion in the *superior* extremities. The motor power had acted in a retrograde direction."

In another decapitated turtle, he laid bare the spinal marrow in the dorsal region, and stimulated it as before. This produced motion in *both* the superior and the inferior fins. He next exposed a spinal intercostal nerve in the turtle, and stimulated it. He produced similar movements in both superior and inferior extremities. The motor powers acted in a retrograde or an *incident* course, into the spinal marrow, and both upwards and downwards, into both extremities. He then irritated the cutaneous surface into which those nerves were distributed, with the same result. It was the same when he irritated the extremities of any of the fins. This is identical with the results obtained by Whytt, Legallois, &c., and was referred by them to sensation. The action of the vis nervosa, in this last mode, is identical with that of the second series of experiments alluded to. Dr. Hall next proceeds to the application of this principle to the animal economy.

On irritating the border of the glottis, in an animal from which the brain has been removed, the larynx is closed; on irritating the border of the anus, the sphincter is firmly contracted. These actions Dr. Hall has proved by experiments, to depend upon the action of the spinal marrow. The action of the larynx and sphincter, are shown to be dependent upon the vis nervosa of Haller, and this is the case with regard to all the orifices, and all the sphincters of the animal frame. All the actions of the system are the result of *excitation* by stimuli applied to nerves, which proceed to the spinal marrow, whence other nerves take their origin, and pursue a *reflex* course to the parts to be moved.

This, then, is the system of which Marshall Hall claims the origin. That of incident nerves, the true spinal marrow, and reflex nerves. It presides over the acts of ingestion and expulsion, over the orifices, and the sphincters. It disproves the idea of segments of the spinal marrow. Five circumstances are required in every instance of an excito-motory act; an excitant; an excitor nerve, continuous to the nervous centre; the integrity of that centre; a motor nerve, continuous to the muscle to be excited into contraction; and that the muscle be endowed with perfect irritability. If any part of the *arc* be interrupted, the phenomenon ceases instantly. There is proved to exist then, according to our author,

1*st*. A true spinal marrow *physiologically* distinct from the chord of intra-spinal nerves.

2*d*. A system of excito-motory nerves, physiologically distinct from that of the sentient and voluntary nerves.

3*d*. A nervous influence, the excito motory power, operating in directions *incident*, *upwards*, *downwards*, and *reflex*, with regard to the true

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spinal marrow, the centre of the excito-motory system. The medulla spinalis consists of two portions, so intimately blended, as not to be separable by the anatomist. The *first* of these, is the intra-vertebral chord of sentient and voluntary *nerves*, which proceed *to* and *from* the cerebrum as their centre. The *second*, which may be called the true spinal medulla, is distinguished by being excito-motory, and is the axis of a peculiar system of excitor and motor, or excito-motory nerves, generally, but perhaps not invariably, blended with the former.

The close combination of these two portions of the nervous system in the vertebrata, is the consequence of the necessity of the several pairs of the compound nerves being *intervertebral*, in their exit from the spinal column. This necessity does not exist in the articulata, and the two systems may be therefore anatomically, as well as physiologically distinct. Dr. Hall thinks that he has ascertained, that while the ganglionic nerves in the lobster are incident and excitor, and the columns both direct and retrograde, in their influence, the ganglionic nerves are purely motor, and direct in their mode of action.

Every muscle appears to require *tone*, which is the result of the excito-motory power, conveyed by nerves probably involved in the same neurilema with voluntary nerves. This power acts during sleep in all the muscles, except the levator palpebræ, and perhaps the four recti of the eye. It is probable that there are no purely excitor nerves in health. The pneumogastric is the least sentient, and most purely excitor of any in the vertebrata. But in certain diseases, the sentient power is annihilated while the excito-motory continues. In diseases or experiments in which the spinal marrow is disorganized or divided, the phenomena which remain are entirely of the excito-motory class. Sentient and voluntary nerves are blended with the excitor and motor nerves, but when the influence of the centre of this system is cut off, their influence is suspended; but the centre of the excito-motory system being in the spinal marrow, the functions of the excito-motory nerves remain.

The anatomy of this system is, therefore, blended with that of the cerebral system, but its physiology, pathology, and therapeutics are perfectly distinct. The *vis nervosa*, and the power which produces those actions designated as instinctive, automatic, sympathetic, &c., are identical. The incident, retrograde, and reflected courses, and combined forms in which it operates, are at variance with the laws of Müller. The medulla spinalis, or the medulla oblongata, is the special *combiner* and *disposer* of the excito-motory functions, in producing the complex effects and operations observed in deglutition, respiration, &c.

The novelty of Marshall Hall's views consists, therefore, in attributing to that power called by Haller, the *vis nervosa*, those functions that have been supposed by other physiologists, and even by Charles Bell, to be voluntary, and dependent upon the cerebrum. A muscle is stimulated, the action is conveyed by an excitor nerve, to that particular part or tract of the spinal marrow or medulla oblongata, which is the centre of this system, and which cannot be anatomically traced, but is only known by its functions. It is then conveyed by a motor nerve to the muscle. This action is represented by two lines, one passing from the muscle to the medulla or centre; and the other passing from this centre to the muscle; the first conveying the excitor, the second the motor power.

This then is in brief, the essence of Marshall Hall's discovery. If these

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views are proved to be incorrect, the whole fabric he has reared upon it must fall; but if his foundation be substantial, there may be faults in the superstructure, there may be errors in carrying out his system, to which every new system must be liable; but these will not injure the foundation or detract from the merits of the system itself. The system is simple, and rests upon experiments, which may easily be repeated. But though Dr. Hall's views were first published in 1832, and 1833, so far from being refuted, they have gained ground, despite of all opposition; and the principal dispute is now, not with regard to their truth, but with regard to their originality.

In regard to the second question we propose to consider the value of these views; it is not easy to pronounce in the present state of the subject, as to their practical bearing. The functions of the cerebrum, and of the spinal marrow, are of the highest importance, and whatever leads us to a more accurate knowledge, and discrimination of the functions of each of these organs, must be of the utmost value, not only in a speculative point of view, but from the light it must throw upon the pathology of their functions. The cerebrum and the spinal marrow, play the part of magicians in pathology. Their action is unseen, and much is doubtless attributed to them by some, in which they take no part; while, on the other hand, their power in the production of disease, is too little estimated by others. Whatever leads, therefore, to correct views of the pathology of the cerebral, spinal, and nervous systems, must throw immense light upon therapeutics in general. Perhaps, however, there can be no better test afforded of the value of these views, than the contest which has arisen with regard to their originality; and this brings us to the third question we proposed to consider, the originality of the system.

One of those who have contested the honour of the discovery most warmly, is Mr. Mayo. But while we give him all credit as an industrious and ingenious inquirer in physiology, it is perfectly evident that he did not perceive the results, which might be deduced from the experiments he published; and that but for Marshall Hall, these deductions would never have been made. But the claims of another writer, Prochaska, which have been set forward, demand more serious investigation.

We may premise, however, in the first place, that Prochaska's works were published in 1779 and 1800, and that from that time to this, no one has deduced from them a system similar to that of Marshall Hall, notwithstanding all the attention that has been bestowed upon the nervous system. His works are quoted freely by Charles Bell, yet this great physiologist and discoverer did not perceive the important deductions which he should have made, had the anticipation of Marshall Hall's views been so complete as has been affirmed. Müller also, though he has contributed much towards the foundation of the system, either saw no such system in Prochaska's writings, or gave it no credit; the laws of Müller, we have before alluded to, being in complete opposition to the existence of the reflex function. We must therefore allow to Dr. Hall, the credit of bringing the system into notice, and establishing and illustrating it, whether he derived it from Prochaska, or from the result of his own labours and reflections. It is, after all, of little consequence to us, whether the system was generated in his own mind, or derived from the works of another. In Prochaska's works, if it existed, it was a dead letter, unknown, and undeveloped. It is evident, that we owe to our author its development, and

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its promulgation. He was the only physiologist who perceived the value of these views, and made them into a system. The honour due to him, therefore, would be nearly as great, if he had published his system as derived from Prochaska, as if he claimed the original discovery of it. But, as he did not do so, his reputation for disingenuousness must suffer, if the system was derived from Prochaska; and if the views of this writer were known to him. On the other hand, he is accused of culpable ignorance, and negligence, if he had not consulted this author. One of Dr. Hall's most severe critics allows him the merit of the "harmonious combination of these doctrines into a uniform system, and the application of it to the explanation of many phenomena, which were not formerly regarded as explicable on such principles;" and the same critic observes, that Prochaska wanted only the knowledge of the system, subsequently developed by Sir Charles Bell, to make his discovery complete. Now as this knowledge was pretty essential to the formation of the system under consideration, nearly all is allowed to Marshall Hall, which he is disposed to claim. But let us proceed to the consideration of the part of Prochaska's writings in question.

The author observes that external impressions which are made upon the sensorial nerves are very rapidly propagated through their whole length to their origin; where, when they have arrived, they are reflected according to a certain law, and pass into certain responding motor nerves, through which they are again propagated to muscles, and excite certain and determinate motions. This place, in which as a centre, the nerves of sense and of motion meet and communicate, and in which the impressions of the sensorial nerves are reflected upon the motor nerves, is called the sensorium commune. The seat of the sensorium he fixes in the spinal marrow, or in the spinal marrow and *part* of the cerebrum and cerebellum, for he observes that when a frog is decapitated it still crawls and leaps, and on the application of stimuli a part is retracted; which could not be without the consent of the sensorial and motor nerves, of which consent the seat must be in the spinal marrow, a part of the sensorium commune remaining. The reflection of sensorial into motory impressions does not obey mere physical laws but natural or vital laws, by which certain external noxious impressions are followed by certain motory impressions tending to remove the source of injury; and the reverse with regard to beneficial impression. Irritation of the internal membrane of the nostrils excites sneezing, because that irritation made upon the olfactory nerves, is carried to the sensorium commune, and is there reflected, according to a certain law, upon motor nerves going to the muscles appropriated to respiration. Any irritation given to the larynx, in like manner causes it to close. The approximation of the finger to the eye causes the closure of the palpebræ, &c. These actions take place whether the mind is or is not conscious of them. The principal function of the sensorium commune consists in the reflection of sensorial into motor impressions. The sensorium commune acts without consciousness in producing the convulsive motions of epileptic patients and in those which are observed during sound sleep, besides motion of the heart and respiration. The motions which remain in the body of a decapitated man are of this nature. They arise from physical laws proper to the sensorium commune, and are spontaneous and automatic. Those actions which take place in the animal body with consciousness are such that the soul has power over the will, or such as the soul can coerce

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and impede. The former are ruled by the sensorium commune, and are automatic; while the actions which the soul directs are called animal.

This does indeed bear a strong resemblance to Marshall Hall's theory. Here we have sensorial nerves in place of excitor nerves, a common centre, the *sensorium commune*, which is seated partially in the spinal marrow and acts when cut off from the cerebrum, and which is entirely distinct from the soul. We have also motor nerves which are identical with those of our author. The parts which afford the principal examples of reflex action are also instanced by Prochaska, the lining membrane of the nostrils, the eyelids, and the larynx, &c. Respiration also is considered by him as well as by Dr. Hall, as partly a function of these nerves and their centre. We should, therefore, at first sight, be disposed to consider the views of our author as at least suggested by the passages in Prochaska, were it not for his positive denial, that he ever saw the work of this writer until three years after his first paper was published.

But we may ask, whether any one upon reading the passages alluded to, and of which we have given the substance, would have considered them as involving any more than a vague theory such as thousands which have had their birth and sunk speedily into oblivion? A person who has a general knowledge of anatomy and physiology might ask "why do I sneeze when snuff is presented to my nostrils? It is not a voluntary act, nor can I perform the action if I attempt it by my will; nor is it the effect of the stimulus upon the part to which the snuff is applied merely, for without the agency of the nerves there could be no such combined action as produces sneezing. The sensation produced by the stimulus must therefore be conveyed by nerves to some common point, and from thence the motive impulse returned by other nerves to the seat of action." This we believe to be pretty near the common theory. A certain stimulus applied to a muscle acts through the medium of the nerves upon the brain, and the brain either with or without the cognizance of the mind acts upon the muscles through the medium of the nerves. The mind in this case has been supposed to be the agent but acting so instantaneously as to produce no impression on the memory, in the same manner as the hand of an experienced musician passes over the keys of his instrument and performs with accuracy, while his thoughts are entirely engaged upon a different subject, the mind undoubtedly acting in this case, but retaining no impression of its action.

Here then is the general idea of a reflex action. The experiments upon decapitated animals, however, show that the brain has no connection with this function, and hence the consideration of these experiments might have naturally led both Prochaska and Marshall Hall separately to place their sensorium commune or centre of reflex action in the spinal marrow.

We do not wish, however, to constitute ourselves apologists or champions of Dr. H. We have presented, as we believe, a fair account of the views of Prochaska condensed from the extracts given in the original, in the British and Foreign Quarterly Review, translated in the London Medical Gazette, and in the work we are reviewing. We leave it for our readers to form their own opinions upon the subject. We must say, however, in conclusion, that even if Dr. Hall's denial of his knowledge of Prochaska's theory be disputed, he must, at least, be allowed the merit which the reviewer above mentioned concedes to him. The developement and the formation of a complete system, and its application to the explanation of facts must, at least, be allowed to him. The honour of a discoverer

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belongs more to him who traces deductions from experiments, who brings a theory to the test of facts, and carries it out into its applications; who combines the whole into a system and renders it intelligible and demonstrable—than to him who starts a hypothesis, but leaves it unconfirmed by experiment or untraced to its practical results. He in fact deserves more whose labour causes a truth to be received, than he whose ingenuity discovered it.

We will now go into the further consideration of our author's views. He undertakes to trace the action of the excito-motory power, *vis nervosa*, *vis motoria*, or excitabilité in; 1st. A special anatomy. 2d. A special physiology. 3d. A special pathology; and 4th. A special therapeutics.

Previously, however, to entering upon these divisions, he finds it necessary to consider the *ganglionic system*. This he divides into two parts; the first is that situated amidst the organs of the face and head, and chiefly connected with the trifacial nerve. It comprehends four ganglions; the ophthalmic or ciliary; the rhinic or nasal; the otic or auricular; and the glottic or lingual. There are also the ganglia formed upon the major portion of the trifacial, and upon the posterior roots of the spinal nerves. The external division of the ganglionic system consists, therefore, of the fifth and the posterior spinal. The internal division comprises the grand sympathetic and the pneumogastric. These ganglia, according to Dr. Hall, perform the office of nutrition.

"1. There is an internal nerve for formation, nutrition, secretion, &c. 2. This nerve is ganglionic. 3. There are external organs and structures requiring nutrition, &c. 4. There are also external ganglionic nerves. The inference is plain that these constitute the external ganglionic sub-system."

The semilunar and external spinal ganglia differ in appearance from the ganglia of the sympathetic. This difference consists in their being alone *plexic*. The internal ganglionic nerve is purely nutrient; its ganglia are simple. The external involve sentient and probably excitory nerves with the nutrient; they, therefore, combine the appearances of the plexus and the ganglion. The trifacial and spinal nerves, besides their other functions, are shown to possess a nutrient and secretory power; 1st. Because the distribution of this nerve to the lachrymal, parotid, and submaxillary gland can only be for secretion. 2d. The experiments of M. Magendie, in which, division of the trifacial within the skull led to the destruction of the eye, can only be explained in this manner. 3d. The cases of destruction or compression of the trifacial within the cranium from disease of the human subject, are of the same character. If the sensation of the face be lost by paralysis arising from disease of the *brain*, the eye is safe, but if the same event occur from compression or destruction of the *fifth within* the cranium by disease, or in an experiment, the eye ceases to be nourished and becomes destroyed. In the former case the nerve of sensation merely has suffered; in the latter the nerve of nutrition as well as sensation. 4. A branch of the trifacial nerve discovered by M. Arnold, and termed by him the recurrent of the fifth, is so situated that its only office must be that of nutrition. 5. The whole nervous system seems to have a certain influence upon the action of the heart. To crush the brain or spinal marrow, enfeebles or arrests the circulation. He has discovered that the same effect is produced by crushing the limbs; doubtless through the medium of the ganglionic system.

Physiology of the Nervous System. A horse was struck with a pole-

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axe, over the anterior lobes of the brain. He fell instantly, was convulsed, and then remained motionless. Shortly after he began to breathe, and continued to breathe freely by the diaphragm. When lacerated, or pricked by a sharp, or pointed instrument, on any part of the face or surface, it was totally motionless, manifesting no evidence of sensation or volition. When, on the other hand, the eye-lash was touched with a straw, the eye-lid was forcibly closed by the action of the *orbicularis*. When the cornea was touched, the eye-ball revolved outward by the action of the abducens. When the verge of the anus was touched, the sphincter contracted forcibly, the tail was raised, the vulva was drawn towards the anus. Upon destroying the medulla oblongata, there were violent convulsions, respiration ceased, and the eye-lid and eye-ball remained motionless on the application of stimuli. Dr. Hall divided the spinal marrow of a frog below the occiput. All was still. On pinching a toe, both posterior extremities moved. All was still again: there was no sign of pain from the wound in the neck. The *power* to move remained, the *will* was extinct. On destroying the whole spinal marrow, the excito-motory phenomena ceased. To prove that the excited motions are not the result of irritability, he now applied a slight galvanic shock, and the motions were instantaneously stimulated into forcible action. In a patient in deep coma, he pierced the skin on the cheek, the hand, the thigh, &c., with a pin. There was no sign of sensation. He then touched the eye-lash, and *internal* nostril, with a feather. This excited action of the orbicularis, and alæ nasi.

The functions of the cerebral system are sensation, perception, judgment, volition, and voluntary motion. The true spinal system is independent of the cerebrum, and subsists when the cerebral lobes are removed. The cerebral system is the seat of the intellect; the true spinal is the organ of the passions. The motions of the latter system are always excited, even the motions of respiration, as far as they belong to this system, are excited. The true spinal marrow is the source of *tone* in the whole system. It presides over the expression, the passions, and emotions, over all those acts designated as sympathetic, over the orifices and the sphincters, and in fact over the whole muscular frame. The cerebral system sleeps, but the true spinal system never sleeps. It is susceptible of modification by volition, and hence, some of its functions have been denominated mixed.

In his third lecture, Dr. Hall proceeds to the consideration of the principal functions of this system separately. 1st. The *excited closure of the eye-lids*, which is dependent upon the excito-motory action in the orbicularis. The levator palpebræ, and perhaps the four recti, are purely cerebral, and voluntary; and while awake the first named muscle is more powerful than the orbicularis. In sleep the orbicularis prevails. 2d. *Deglutition.* If an incision be made in the side of the neck in a living animal, and an instrument be passed in, it is immediately grasped forcibly; and this occurs in a young animal, even after decapitation. In the last case, the action ceases, either upon destroying the medulla, or dividing the nerves which connect the system. The *cardia* opens to receive food from the œsophagus, and closes to retain it. It is paralyzed by dividing the pneumogastric nerve, which is pre-eminently the internal excito-motory nerve. Deglutition consists, therefore, first, of an excited closure of the larynx; secondly, of an excited action of the pharynx; thirdly, of an excited opening of the

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cardia. The active dilatation of the sphincters is similar to the action of the sphincter of the rectum. 3d. The *excited closure of the larynx.* This does not take place, when the larynx is separated from its connections with the medulla oblongata, or when the medulla is destroyed. It is, therefore, plainly dependent upon excitor nerves, and the medulla, produced by a reflex excito-motory act of the superior laryngeal, and the medulla oblongata. 4th. *Respiration* is a mixed function, partly dependant upon cerebral agency, or volition. It may be continued for a period, though imperfectly, when the cerebrum is cut off, or when the pneumogastric nerves are cut off, but not when both cerebrum and pneumogastric nerves are removed. The medulla oblongata is not the source, but the *channel* of the respiratory motions, the pneumogastric nerves being, the *primum mobile*, the excitor of these motions, and the medulla the organ which combines the different motions which constitute respiration. The trifacial and spinal nerves are also excitors of respiration, while the various nerves comprised in the respiratory system of Sir Charles Bell, are the true *motor* nerves of respiration. 5th. The *Closure of the Sphincter Ani*, 6. the action of the expulsors, 7. the act of generation, are all dependent upon the excito-motory system, as is proved by various experiments. 8th. The *tone* of the muscular fibre throughout the animal frame is shown to be dependent upon this system. Two rabbits were taken, one of which was decapitated, and the other deprived both of head and spinal marrow. The limbs of the former retained a certain degree of firmness and elasticity; those of the second were perfectly lax. In a turtle, a similar result took place. 9th. The *seat of the passions* is in the medulla oblongata. In an idiot in whom the cerebral functions are undeveloped, the passions and appetites often manifest themselves to a violent degree. The arm which is insensible to volition in hemiplegia, is strongly agitated by surprise, and other emotions. The seat of these emotions is therefore placed lower down than that of volition, and the passions are manifested in the most distinct manner. But in paraplegia the influence of the passions as well as volition is cut off. The seat of this disease is therefore lower down than that of the emotions.

With regard to the anatomy of the nervous system, Dr. Hall gives a table of the cerebral system, representing the cerebrum, and cerebellum, as the centre of the system, and placing the sentient nerves on the left hand, and the voluntary on the right. Also, a table of the true spinal or excito-motory system, with the medulla oblongata, and spinal marrow, as the centre, with the incident, excitor nervous branches on the left, taking their origin from the eye-lashes, pharynx, anus, cervix vesicæ, &c., and the reflex, motor branches on the right. The pneumogastric is almost throughout both excitor, and motor. The excitor nerves may be viewed as *guards* of the orifices and the exits of the animal frame. The respiratory system consists of the *excitors*, which are the trifacial, pneumogastric, and the spinal: the medulla oblongata as the *centre*, and the *motors*, which are the intercostal, diaphragmatic, lower spinal nerves, &c.

We now come to the *pathology* of the nervous system, according to Marshall Hall; which is the fourth point of view in which we proposed to consider his system.

"In order to conceive a clear idea of the pathology, we have only to imagine the physiological phenomena already noticed, assuming a pathological character. Now the force of these phenomena may be augmented, diminished, or annihilated."

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The whole order of spasmodic and convulsive diseases belong to the excito-motory division of the system. All these diseases have their source in one of three parts of this division. The first series have their origin in the spinal marrow itself, the axis or centre; these Dr. Hall terms *centric.* The second, arising in the excitor nerves, are *eccentric.* The third series arise in the course of the motor nerves.

In all or most spasmodic diseases, the parts most concerned are the orifices, and the sphincters. Thus the larynx is closed in convulsions of children, puerperal convulsions, epilepsy, &c. It is spasmodically affected in tetanus, and hydrophobia. The respiratory muscles are affected in all; the sphincters, and even the ejaculators in epilepsy. The latter disease affects every part of the excito-motory system. The condition of the larynx, and respiratory motions, affords an important diagnosis between epilepsy and hysteria. In the former, the larynx is usually closed with forcible expiratory efforts; in the latter, with heaving, sighing, and breathing. Tetanus is a disease of the excito-motory system. When arising from disease within the spine, it ought to be termed *centric* tetanus. When the cause is seated in an excitor nerve, as when such a nerve is included in a ligature, or lacerated in a wound, it should be termed *eccentric.*

The act of vomiting combines the excitor and motor nerves of respiration, into one system.

Disease of the meninges, and of the brain, induce spasmodic actions probably upon the principles of irritation, and counter pressure, the first, through the medium of the nerves, distributed to the membranes, as the recurrent of the 5th of Arnold. Convulsion from excessive hæmorrhage is *spinal.* Those cases in which *one* limb of an infant cease to grow, are probably cases in which the disease is seated in the posterior spinal nerves leading to the part, probably at or near their origin.

Therapeutics. Excitement of the cerebral system may be diminished, by a due attention to exclude the patient from light, noise, and every kind of excitement. The excito-motory system is excited by strychnine, and calmed, or diminished in its powers, by hydrocyanic acid. The carbonate of iron, liquor arsenici, galvanism, dashing cold water on the surface, the removal of irritation, and the use of counter-irritation, are the principal therapeutic processes.

The irritability of the muscles of an inactive limb is greater than that of an active limb. This is evinced by the action of galvanism, in which a slight shock produces an effect upon the paralytic limb without any upon the sound limb.

Contraction of the limbs in atrophy of the brain, and old hemiphlegia, is dependent upon the constant influence of the true spinal marrow, or the principle of tone, on muscles whose irritability is great in consequence of the want of voluntary actions. An amyelous fœtus cannot survive birth. An anencephalous fœtus may live for several hours. In the latter case, all the phenomena are excito-motory.

Congenital diseases of the nervous system are divided into those which take place *in utero*, and those which are induced *inter partum.* The latter are apoplexy and asphyxia. These are with difficulty distinguished. Efforts to excite respiration, must be applied to the excitors of respiration, the fifth, the pneumogastric, and the spinal nerves. The *fifth* must be excited by *forcibly* blowing, or dashing cold water on the face, or by stimulating the nostril with ammonia, snuff, &c. The *spinal* nerves must

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be excited, by forcibly dashing cold water on the thorax and thighs, by tickling or stimulating the sides, the soles of the feet and the verge of the anus. If this fails, the practitioner must try to excite respiration through the pneumogastric, by distending the lungs artificially, from his own lungs. If these fail, galvanism, or electric shocks, should be passed from the side of the neck to the pit of the stomach, or in the course of any of the *motor* respiratory nerves. The apparatus for this purpose, should be had ready for use as soon as possible, but the lapse of an hour or more should not prevent its being used. Care should be taken to prevent a return of the asphyxia.

Dr. Hall claims the priority, in having distinguished the "hydrocephaloid" disease, from hydrocephalus, which has been described also by Dr. Abercrombie, in his Researches on Diseases of the Brain, &c., and by Dr. Gooch, under the head of "Symptoms in children erroneously ascribed to disease of the Brain." This disease depends principally upon exhaustion, and as it has been frequently confounded with inflammation of the brain, or incipient hydrocephalus, the remedies employed to relieve it have contributed to its increase. Its origin in early infancy is from diarrhœa or catharsis; at a later period of infancy from loss of blood or from purging. The effects of exhaustion in children, Dr. Hall observes, open a new field of medical investigation. This disease is divided into two stages; the first, that of irritability, the second, that of torpor. In the first, there is feverishness, and undue sensitiveness; the patient starting on being touched; sighing, and moaning during sleep, and screaming; the bowels are loose and flatulent, and the evacuations mucous and disordered. If cordials are withheld, the second stage supervenes, more marked by symptoms of exhaustion. The countenance becomes pale; cheeks cold; eyes half closed, unfixed, pupils unmoved on approach of light; the breathing, at first quick, and then irregular and affected by sighs; the voice becomes husky, sometimes with cough, &c. The warm bath is a remedy of great efficacy for the state of irritability. For the coma, a small blister, or sinapism should be applied to the nape of the neck. The principal treatment of the disease consists, however, in the administration of cordials. Dr. H. gives several interesting cases exemplifying the character and symptoms of this disease.

The seventh lecture is devoted principally to the consideration of the croup-like disease. This our author describes as arising from irritation of the trifacial, pneumogastric, and spinal nerves during dentition, or from indigestion or constipation. The effect of this irritation is conducted to the spinal marrow, and thence, reflected upon the superior laryngeals, diaphragmatic, intercostals, and the abdominal nerves. All spasmodic diseases might be represented in a similar manner. The whole class of convulsive diseases consist of affections of the true spinal system; but do not all originate there. Some originate in the cerebrum, from *counter pressure* in diseases; from contre-coup in injuries of the encephalon; from *irritation* in diseases of the meninges, or at the base of the brain; and from *exhaustion*. Of convulsions arising in the true spinal system, some are *centric*, others *eccentric*, according as they originate in the spinal marrow itself, or in the nerves. Their principal causes are *dental* irritation, *gastric* irritation, or *intestinal* irritation. Dr. Hall declares, that he has never known the measures founded upon his view of the causes to fail, when early and effectually enforced. There are certain other causes

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which act upon the nervous centres. These are passion, vexation, and certain odours. The state of *sleep predisposes* to attacks of convulsions.

The croup-like disease has been described by Dr. Underwood, and Dr. J. Clarke. It consists in convulsion attended with a peculiar sound of the voice similar to croup, and frequently coming on during sleep, or on any exertion of the body or transient surprise. Dr. Hall affirms, that if, instead of the warm bath, the *gum lancet* and warm water *enemata* were *instantly* administered, many patients would be saved. Dr. H. concludes this subject with an account of several cases, and with a *sketch* of the disease. It may seem rather singular, to attempt to represent the action of morbid agents pictorially; but it is certainly a very clear, and forcible method. The croup-like disease is represented by certain lines indicating the spinal marrow, *to* which on the left, the trifacial, pneumogastric, and a spinal nerve, pass *from* the face, stomach, and rectum; and on the right, the motor nerves pass *from* the spinal marrow, *to* the larynx, arms, diaphragm, and lower extremities, the course being represented by arrows.

As the cerebral system becomes developed, in the progress towards manhood the true spinal becomes obscured. The true spinal functions are entirely of a *vital* kind.

Dr. Hall divides the diseases of the nervous system, into the cerebral, the true spinal, and the ganglionic.

In encephalitis, the cerebral system is first affected; next, the true spinal, and thirdly, the ganglionic. The principal remedy for this disease, is full blood-letting. Our author insists strongly, that this should be practised in the erect position, and carried to the first symptoms of fainting. By this precaution, the danger is avoided, of mistaking diseases of an opposite character for encephalitis. The same remark applies to the diseases next considered, apoplexy, and paralysis, or as Dr. Hall terms them, congestion, without rupture, and hæmorrhage, or rupture. In congestion, there is extreme tolerance of loss of blood. In actual rupture, the system is extremely and dangerously affected by this loss. Dr. Hall inquires, whether it may not be better in case an attack of apoplexy is recovered from, to address the remedies for the remaining paralysis, rather to the cerebral system than to the spine? Liniments, and electricity may be tried; but especially voluntary movements of the limb. Cupping so as to induce irritation, rather than to abstract blood, setons, issues, near the part affected, that is, upon the hemisphere opposite the paralysed side, are our principal remedies, but especially the first of these. In paralysis, the spinal system acquires the superiority over the cerebral; the powers which have become obscured, but not impaired, by the development of the cerebral system, are left uncontrolled, producing rigidity of the muscles from too much *tone*, and incapacity for motion. The proper and natural cure for this state of things is, therefore, cerebral exertion, and *voluntary* motion, and not strychnine, or galvanism.

Tubercles never occur beyond the age of fifteen in any organ of the body without being found in the lungs. In a doubtful case, therefore, where their existence is suspected in the brain, the diagnosis may be aided by examination of the lungs. Hereditary predisposition also will serve as an additional guide.

Mania is frequently found attended by deposits of serum and lymph between the arachnoid and the pia mater, and sometimes with effusion into the ventricles; sometimes injection of the cortical substance. Dr. Hall seems to

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be of opinion that these deposits are rather the product than the cause of mania. "If encephalitis is the frequent effect of mental harass and effort, why may not these appearances be the effect of the maniacal state?" "If mania be the *cause* of the morbid appearances, our hopes are excited; if it be the effect, our fears are confirmed." The *moral* treatment is so important as it is known to be, because it diminishes the violence of the maniacal condition, and, thence its tendency to produce morbid changes of structure. For the same reason, it is important to procure quiet sleep.

There are a series of morbid affections, which result from peculiar affections of the general system, which it is important to distinguish. The first of these is the intestinal irritation from indigestible food, scybala, &c., excited into activity by a fall or some shock of the system or other accident.

"The symptoms are rigor, frequently severe heat of the surface, and violent pain of the head and intolerance of light and sound; the symptoms, in a word, of the most acute encephalitis."

"The breath is tainted, the tongue loaded and swollen, the secretions morbid; but it would be difficult to establish a distinct and confident diagnosis without the criterion afforded by the effect of blood-letting in the erect posture."

In a doubtful case, an enema of warm water should be very slowly administered, and its effects examined. If there are scybala, if the symptoms are subdued, and, especially, if there be faintishness, the case is undoubtedly not cerebral inflammation, but intestinal irritation. If the case continue doubtful, venesection should be resorted to, with the precautions before mentioned, and the blood allowed to flow until the lips become pallid; if the case be encephalitis, four times the quantity of blood may be taken, without producing syncope, that could be taken, without that effect, in intestinal irritation.

Dr. Hall next notices exhaustion from loss of blood, which has sometimes been mistaken for cerebral inflammation; and the proper treatment of which consists in the use of stimulants. The influence upon the encephalon of that state of bloodlessness which occurs in chlorosis is next noticed. Within the last four years, Dr. Hall has seen four fatal cases of chlorosis. In one of these cases, where there was a post mortem examination, there was œdema, effusion under the arachnoid, and into the pleura, the pulmonary cellular membrane, &c., and a general state of bloodlessness. *Shock*, mental and physical, the effects of alcohol, dropsies, and ischuria are the remaining subjects discussed under the head of cerebral diseases arising from various affections of the system.

The diseases of the spinal marrow are divided by Dr. Hall into central, or diseases of the true spinal marrow itself; the centripetal, or diseases excited through the excitor nerves; and the centrifugal, or diseases of the motor nerves.

Inflammation within the spine like encephalitis is distinguished into spinal meningitis; inflammation within the membranes; spinal myelitis of the cerebral tracts; of the true medulla; and of its principal divisions.

Blows, falls, or other injuries, and exposure to damp or cold, are the principal causes of inflammation within the spine. It rarely exists without meningitis within the cranium. The symptoms of meningitis are more those of *irritation* of the spinal marrow or spasm; those of myelitis more those of *destruction* of the organ or paralysis. Among the first symptoms

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of the former disease is local *pain* augmented by motion and by percussion, but rarely by pressure. There is trismus, tor icollis, partial or complete opisthotonos, sometimes convulsions. Respiration is sometimes difficult, and sometimes there is retention of urine and constipation.

In myelitis, there is paralysis of sensation and voluntary motion, a sense of numbness, impaired sensibility, and a sense of feebleness, which are first observed singly or combined, in one or both of the inferior, or superior extremities. In some cases, probably complicated with meningitis, there is augmented sensibility. In other cases there are spasmodic or convulsive affections.

Centripetal epilepsy, which takes its origin in the extremities, or as Dr. Hall calls them, the *origins* of the excitor nerves, is considered as curable, however difficult of cure. The causes of this are irritation of the stomach, the intestines, or the uterus. The immediate accession of a paroxysm may often be prevented by dashing cold water in the face, or by exciting the nostrils with snuff, &c.

In tetanus, Dr. Hall proposes the division of the injured nerve, or amputation. In hydrophobia he would combine the administration of hydrocyanic acid with tracheotomy. Strychnine, he says, might cause tetanus or hydrophobia but can never cure it. Hysteria is distinguished from epilepsy by the closure of the larynx in the latter, which never takes place in the former. Hysteria seems to single out and affect every function which belongs to the true spinal system. Chorea is centripetal in its origin, but becomes centric and cerebral in its course before its fatal issue.

In the twelfth and last lecture the subject of spasmodic asthma is first considered, and next the act of vomiting, which is a reflex, spinal act. Dr. H. considers abortion an excited act, which is sometimes produced through the spinal nerves of the rectum, by the action of morbid and exciting excretory matter, and sometimes by a dead fœtus, which acts as a foreign substance.

The centrifugal diseases, which are diseases of the reflex motor nerves, form the remaining subdivision. These are spasmodic strabismus, spasmodic tic, and spasmodic torticollis. These subjects complete the course of lectures under review.

It is evident that a wide field of discovery and research remains open. It is to be regretted that our author and other physiologists cannot unite in pursuing harmoniously these objects of inquiry, without jealousy or ill feeling. We have taken no notice of the frequent ebullitions of anger, with which the lectures are seasoned; but we may say, in conclusion, that, however provoked, they appear to us undignified. It would be much better for Dr. Hall to trust to the merits of the system he has established, for the maintenance of his reputation, than to the angry vindication of it from the attacks of his opponents. E. W.

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ARTICLE XII. *Elements of the Practice of Physic, presenting a view of the present state of Special Pathology, and Therapeutics.* By DAVID CRAIGIE, M. D. F. R. S. E. Vol. I. 8vo. Edinburgh, 1836. pp. 952.

THE most valuable, and enduring medical books are undoubtedly those written by men of strong natural powers of observation, who write from the fulness of their own minds, and describe in plain forcible terms, with brevity, and conciseness, what they have seen, and experienced. Such are the writings of Hippocrates, of Sydenham, and of John Hunter; to which may be added, the more modern works of Sir Astley Cooper, Arbernethy, &c. The few books we have of this kind may be considered as the diamonds of medical literature. These works are durable, because they delineate facts; they describe the phenomena of nature, and nature is always the same. The empirics are, therefore, better writers than the rationalists; at least, their productions have a more permanent value.

But such men being seldom voluminous writers, and having rarely leisure, or inclination to commit to paper the results of their labours and observations, much of the most valuable part of medical experience perishes with those who possess it. The medical community is, therefore, the more indebted to those who will undertake the task of compiling and collecting from the depths of the wide sea of medical literature, whatever is truly valuable.

For having undertaken, and still more for the manner in which he has accomplished, this labour Dr. Craigie is entitled to our gratitude. His work is the most extensive general treatise, that has appeared since that of Dr. Good. The first volume contains 952 closely printed pages, and is confined entirely to the subjects of fever, and inflammation.

The volume bears the appearance of very great labour, and research. The author professes it to be his object, not to give his own opinions upon the various diseases treated upon; but to bring into "one uniform, harmonious, and comprehensive system, the whole of the theoretical principles, and the practical applications, of which the art of preventing, and of curing diseases, now consists." He aims at collecting, and arranging, in a work of moderate compass, the most material points in special pathology, and therapeutics, with the various facts on which they rest; in order to facilitate the labour of the student, and the younger members of the profession. It has been his design also, to reconcile the differences of opinion among different observers—to examine, compare, and analyse, the facts, and classes of facts, recorded by them, and endeavour to reconcile their discrepancies by the result of the labours of others, or by his own experience, and to deduce correct and legitimate principles from the whole.

In his Introduction, the author defines disease, as consisting in impaired action, or disordered function of the body. Functional derangement very often depends upon change of structure. Each function consists of distinct actions; each action, is performed by one or more organs constructed for the purpose, and each organ consists of certain elementary tissues, each of which possesses a definite arrangement of its minute particles, or constituent atoms, and is endowed with certain physical, and vital, or physiological properties. Every derangement of function, depends on the derangement of some of its constituent actions. It is doubtful whether any action can be deranged without some change in the properties of the

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elementary tissue; and how far these properties can be changed without a change in the elementary atoms, which constitute the intimate structure of the organs.

Every disease is probably, at its commencement, a dynamic affection only, and consists entirely of some preternatural change in the properties of some of the organic systems or tissues. In all cases, dynamic changes may be said to terminate in organic changes. Organical changes may be traced to functional lesions. Conversely, an organic change originated by a functional lesion, re-acts upon the latter, and increases it. Every disease presents two orders of objects; one of deranged function, the other of deranged structure. The latter are called diseases, the former symptoms. To form from external signs, &c., an accurate knowledge of the nature, and extent of the morbid action, is the object of pathology. Our author points out the extensive meaning of this word; that it is not confined to anatomical appearances, though it has come to be used more particularly with regard to them. But chemical, and physiological pathology, are full as important as anatomical. Anatomical examinations can show only the effects of morbid actions, not the actions themselves. By connecting, however, these effects with the symptoms observed in the living body, and with the morbid changes observed in the actions and functions, and occasionally in the secretions, we are enabled to arrive at the most precise knowledge of which we are capable with regard to disease. In some diseases, no lesions are discoverable after death, and in these, the greatest obscurity prevails.

Morbid processes differ; 1st. In the nature of the process itself. 2dly. In the acute, subacute, or chronic nature of the morbid process. 3dly. In the simplicity or complication of the morbid action.

In regard to the classification of diseases, none has yet been made which is not liable to serious objections; none which meets with universal acceptation. It would seem to be much the best plan, therefore, either to abandon classifications altogether, or to adopt one that has been generally received, and endeavour to remove what there is in it erroneous, rather than to adopt a new system. The mental habits of men are so various, that no classification is likely to be fitted for all. Every active thinker, or inquirer, will be likely to form a classification for himself. It would, however, be a desideratum, to have an uniform order for the arrangement of diseases; and were it generally adopted, it would matter little upon what principles it was founded. There is little danger in these days, that propinquity in arrangement will lead to the uniformity of treatment of different diseases.

Upon the ground alluded to, however, that it is most natural for every man to adopt his own classification, we cannot deny to a lecturer, the privilege of treating diseases in the order most agreeable to himself; and this is the manner in which our author was led to the arrangement he has adopted. It must be allowed also, that in these days, when so much attention is universally paid to the subject of pathology, an arrangement founded upon the changes of function and structure produced by disease, is the most natural.

Our author commences with fever. This term, he says, is employed to denote that condition of the human body, in which there is an obvious and unusual increase of heat, and unnatural quickness of the pulse, with disorder more or less general of several functions. It is primary or secondary,

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idiopathic or symptomatic, simple or complicated. Dr. C. alludes to the opinion held by Autenreith, Clutterbuck, Mills, and Broussais, that fever never occurs without some local affection. This, he says, is not inconsistent with the existence of idiopathic fever. In most cases, whatever be the form or type the fever takes, an affection of some organ or tissues actually occurs, to a greater or less extent. The manner in which the local affection takes place, is not favourable to the opinion that it is the material cause or agent; since it generally follows the fever, and ceases when it subsides. In other respects, Dr. C. considers this an hypothesis which cannot claim any other denomination, than a mere admission of the difficulty of accounting for the morbid process in which fever consists. The opinions of our author are in fact, as we shall see hereafter, that all fever is in its origin idiopathic, and that the lesions found after death are the consequences, and not the causes of febrile action.

He commences with intermittent fever. In regard to the etiology of this affection, after a full exposition and examination of the causes of the bad effects of marsh miasmata, as given by the best authorities upon the subject, he draws the following conclusions.

In the first place, agues are remarked to be the diseases of wet marshy districts, and to prevail most abundantly in countries which are low, swampy, and humid. Secondly, simple moisture is not adequate of itself to the production of ague. The moisture of the sea, and of large lakes, for instance, do not produce ague. Thirdly, it does not occur in cold climates or seasons, and invariably requires a certain degree of heat. Fourthly, ague appears in the temperate zones at least, to require a certain degree of heat and drought, in the transition from humidity. Fifthly, the existence of a marsh or swamp is not adequate or necessary for the production of ague. Sixthly, agues prevail where no marsh is visible. In most of these situations, the surface is porous and penetrable and retains moisture; and it is either a long time undergoing the process of desiccation, or is in a state of alternate dryness and moisture.

"From the whole of the facts and considerations now adduced, in conclusion, I think it may be justly inferred, that, while the surface of the earth is desiccated chiefly in two modes, either by direct solar heat, or by the successive transition of currents of warm air over it, and in general by both combined, wherever the former mode of desiccation predominates over the latter, agues and remittents and similar fevers, will prevail. Desiccation by solar heat alone, or principally, I infer, is extremely productive of the febrific poison; and wherever this process has attained a certain stage, if human beings are exposed to it, they will infallibly be attacked. It cannot be too frequently impressed, that neither what is in common language called a marsh, nor marshy air, is requisite to produce fever; and that any surface which has been previously moistened, and which like calcareous or coralline rock, sandy soil, or argillaceous matter, may retain moisture, and is then subjected to the desiccating process by means of the solar rays, will at a certain period of that process give rise to fever. In this manner, perhaps, are we to explain the fact mentioned by Dr. Bisset, that in 1759, vernal agues were abundant in the dry and elevated districts of Cleveland in Yorkshire, which is regarded generally a very salubrious situation."

"In situations, on the contrary, in which desiccation is accomplished chiefly by the successive transition of aerial currents, agues are much less likely to prevail; and if these currents are so frequent and considerable as to amount to breezes or winds, they either prevent the generation of the febriferous principle, or they dissipate it as rapidly as it is produced."

Dr. Craigie rejects the opinion that in the beginning of fever, there is

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any affection of the brain and spinal chord, further than is seated in the blood vessels of these parts, in common with the capillary system at large. He doubts whether there is any peculiar affection of the nervous chords, branches, and extremities. It has been ascertained, he says, with considerable accuracy, that the primary effect of fever is sedative, and destructive of the energy of the capillaries and exhalents. When the process of fever is established, it is evidently seated in the capillary net-work; and in those vessels which open in the several membranes and organs. It is not confined to one set of capillaries. It is seated neither in the vessels of the brain and spinal chord, as maintained by Ploucquet, Clutterbuck, and Mills, nor in those of the lungs, nor in those of the alimentary canal, as asserted by Broussais; but it is diffused over the whole minute capillary net-work of the aortic and venous branches of the capillary and exhalent system, in every texture and organ. This does not exclude local affection. In some instances and in certain epidemics, there is a more decided affection of one set of capillaries than of others. In one case, the capillaries of the brain may be most affected, in another those of the lungs, in a third, those of the stomach, in a fourth, those of the liver, in a fifth, those of the intestines, and in a sixth, perhaps, those of the urinary organs.

The blood in ague differs in no respect from that in other healthy states of the body, farther than in not being so thoroughly aerated, in consequence of the difficulty with which it moves through the capillary system of the pulmonary artery and veins. The blood moves more slowly than natural, and hence an accumulation takes place. The energy of the muscles of respiration, moreover, is diminished.

The blood moves more slowly than natural through the capillaries. The idea of its increased velocity is gratuitous; when the action of the heart is morbidly accelerated, it does not empty itself at each contraction, if it does so in health. When the contractions of the heart become more frequent, they are less complete and efficient. Much more blood passes through it when it contracts sixty times than when it contracts seventy.

From the first appearance of the febrile symptoms, the energy and vigour of the capillaries and exhalents are immediately destroyed. They become inordinately contracted at the invasion of the disease, and in the cold fit; whereas, in the hot fit, the capillaries become distended, but with a contracted state of the exhalents. This is shown by the injected appearance of the face during the hot fit. The blood is accumulated in the capillaries, but is not removed from them by the veins. Hence congestion takes place throughout the capillary system. This general congestion constitutes the peculiar oppression that has erroneously been regarded as an affection of the nervous system exclusively. This state cannot be proved by anatomical inspection, because individuals are never cut off on the first days of fever. We see only the effect of the morbid action and not the nature of the process itself. But it admits of a satisfactory evidence, by comparing the appearances found in different patients cut off in different states, and throwing aside the phenomena which are manifestly to be regarded as mere effects, selecting only those which, by their constancy, appear to be entitled to the character of causes.

The most usual appearance in fever, is a preternatural accumulation of blood in the capillaries of all the organs, and most particularly in those which are naturally most copiously supplied with blood, for instance, the

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brain and spinal chord, the lungs, the liver, the spleen, and the kidneys, and among external organs the muscles and the skin.

These Dr. Craigie considers as facts which cannot be disputed. On their cause, various opinions have prevailed; the chief of which may be referred to two heads: the first, that which ascribes this congestion to some state of the solids; the second, that which ascribes it to some change in the fluids. The vessels of the living body undoubtedly undergo some change from the healthy state, but the nature of this change is matter of conjecture. There is good reason to believe that the innate properties of the vessels, whatever they are, are impaired, and their *tone* or *energy* enfeebled. In a state of health these vessels possess some living power, such as *endosmose* and *exosmose*. If such properties exist they may undoubtedly become impaired.

"That some change or disorder, some impairment of energy in the capillaries, does take place in fever, may be inferred, 1st. from the general phenomena of that disease in which the circulating, nutritious, and secreting functions are very much disordered; 2dly, from the effects of that disease in which we always recognise the chief lesions in the capillaries of the brain, lungs, muscles, &c.; 3dly, from our knowledge of the usual causes of fever, which, in other instances, operate chiefly on the vascular system, or the secreting membranes or organs."

In regard to the fluids, the blood may be altered in quantity, or in quality. The first Dr. C. considers impossible. The apparent increase is owing to the loss of power in the capillaries to transmit the blood, and the consequent accumulation and congestion. Among those who have supposed the quality of the blood to be altered, Dr. C. particularly notices Dr. Stevens, who infers that the blood loses its saline impregnation in ague. Dr. C. thinks that the facts upon which Dr. Stevens founded his opinions, have not been sufficiently well established to make it necessary to attempt to refute the opinions founded upon them.

Dr. C. concludes that it is possible for some insalubrious materials, probably those which constitute malaria, to be carried along with the blood. In other words, he allows that the blood may be rendered less fit for circulation by the mechanical admixture of foreign matters, but he denies the possibility of a chemical change; excepting that produced by respiration, and by the morbid action of fever itself. The embarrassed respiration, he says, which is seen in the cold stage of ague, cannot continue long without effecting very great changes in the blood. As aëration is essential the blood must be altered after a few paroxysms. As it circulates more slowly than natural, or perhaps stagnates altogether, it does not part with so much of its carbon, nor receive so much oxygen as it does naturally, nor exhale so freely its watery vapour. In consequence of the interruption of the digestive function, the materials of the blood are not renewed; so sanguification must be suspended if not subverted.

The application of these principles to ague is attended, Dr. C. allows, with considerable difficulty, and the most difficult circumstance is to explain in what manner any morbid change of the sanguiferous, or of the nervous system, should continue for a certain time, and then cease, and return again in a certain period. Cullen ascribed the alternations of ague to the general tendency of the human body to diurnal revolution. Darwin and Hildenbrand have advanced different theories, and the most recent speculator on this subject, M. Bailley, has brought forward a doctrine

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which Dr. C. considers virtually the same with that of Cullen. According to M. B., these revolutions are merely exaggerated forms of certain natural motions observed in all cases, and more or less regular in the human frame. Each space of twenty-four hours in the human frame, consists of a continued series of excitations or rather congestions. These are the effect of physical and hydraulic laws and show the influence of gravitation and other causes over vital phenomena.

In regard to the treatment of intermittent, Dr. C. recommends rather an active course at the outset.

At the approach of the cold fit, he considers it important to apply heat to the pit of the stomach and the extremities. An opiate, or laudanum applied externally to the spine in combination with soap liniment, equal parts of each, at the approach of the cold stage, has prevented the paroxysm. In other cases, opiates given before the cold fit, have rendered it milder and shorter, and after one or two paroxysms have cured it.

Dr. C. recommends full vomiting at the approach of the cold fit. Twenty, twenty-five, or thirty grains of ipecac., with half a grain to a grain of tartarized antimony may be given at first, and the patient should be made to drink freely of chamomile tea, &c. Dr. Kellie, of Leith, has recommended the application of a ligature upon one of the large arteries of the extremity, as very effectual in preventing the approach of the cold fit or checking it, if applied before its onset; and Dr. C. thinks it proper to employ it.

In recommending the free use of warm drinks in promoting vomiting, our author notices the opinion of Cleghorn, who forbids drinks on the idea, that, as the *vena cava* and the subclavian are loaded with blood, the thoracic duct must be compressed, and, consequently, the fluid contained in the stomach is not absorbed, but distends the whole alimentary canal. He recommends that the patient should only rinse his mouth frequently or use slices of lemon or similar substitutes, which will assuage the thirst. Hildenbrand disapproved of cold drinks. Dr. C. adds that they are more likely to overload the stomach than hot drinks. The latter given with the view of facilitating vomiting, are free from this objection and relieve thirst at the same time.

The very sparing use of fluids in catarrh and in pleurisy, is recommended by Dr. Williams in his lectures which are now publishing in the Medical Gazette. In the latter disease, he would have the patient merely sip from time to time, or rinse his mouth in order to avoid the extreme thirst attendant upon the disease. Catarrhs, he maintains, can be cured with great expedition, by entire or almost entire abstinence from fluids.

If cold drinks are used, Dr. Craigie recommends as preferable, the effervescing drinks, such as soda water, brisk beer, mouthfuls of the saline mixtures, or ptisans with nitre dissolved in them. Animal jelly is recommended by Hallè to diminish the sense of burning at the pit of the stomach, and abate the oppression and anxiety. Some physicians have recommended venesection at the very commencement of the paroxysm in the cold stage. Dr. C. thinks it safest to avoid it, unless particularly indicated. When there are symptoms of local inflammation or congestion, he advises the abstraction of from ten to fifteen or twenty ounces of blood, according to circumstances, succeeded, when required, by the application of from twelve to eighteen leeches. When this is done early according to the concurrent testimony of many authors, it occasionally cuts short the disease, always moderates its severity, and paves the way for the efficient employment of

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other remedies. The surface should be sponged with tepid water. Cupping and sinapisms may be used with safety.

In the hot stage, opiates are as useful, as in the cold. Dr. Lind, of Haslar hospital, draws the conclusions; 1st, That they shorten and mitigate the violence of the fit with great certainty. 2dly, They give general relief to the head, diminish the burning heat of the fever, and occasion profuse sweating, with agreeable softness of the skin. 3dly, They induce refreshing sleep with the general extinction of painful and uneasy feeling. Delirium forms their only contra-indication; and when this is present, it is only necessary to wait for its subsidence. Lastly, Dr. Lind maintains that opium is an excellent preparative for the use of the bark. Dr. Craigie says that the proper time for its exhibition is the beginning of the cold fit. If given then, it is unnecessary in the hot one. In simple, open ague, it is unnecessary in the hot fit; in cerebro-meningeal and pneumo-bronchial congestion its use is improper, unless preceded by venesection.

In the sweating stage, the only thing necessary is to keep the patient from exposure.

In regard to the use of bark, it may be given when the urgency of the case requires, in the paroxysm with perfect safety. The great objection to its use at this time seems to be, that the stomach will not bear the bark in substance, and it is consequently rejected. With regard to quinine, this objection would not apply with so much force. Our author gives a full account of the various kinds of bark and the different methods of its administration; and of the various substitutes that have been employed where it could not be obtained. The discovery of quinine has rendered these substitutes useless in cases where the bark in substance could not be borne. Arsenic is the only preparation that can compete with it in efficacy, and it is known that this has succeeded in some cases where the bark has been unavailing. Our author gives an account of the employment of the web of the common spider, which has been used with success by Dr. Jackson, and by Dr. Gillespie of Edinburgh, in the West Indies. Two pills, each containing five grains of cobweb, were given at intervals of two hours, commencing two hours before the anticipated return of the fit.

Cases of ague terminate in death, either by the direct effect on the constitution at large, or by injury done to some organ, the structure and properties of which are essential to life. Death takes place, as it were, by paralysis. In the greater number of fatal terminations, there is reason to believe that mechanical injury of some important organ occurs. Lesions may occur in the brain or its membranes, in the lungs or in the pleura, in the pericardium, in the stomach or in the intestines and in the liver or spleen. *Coma*, or apoplectic death, suffocation, or peripneumony, or some remarkable lesion of the nutritious organs, from gastro-enteric or intestinal disease, are the ordinary modes in which death is caused.

Remittent.—Dr. Craigie is disposed to allow the interchangeable nature, the identical origin, and the simultaneous existence of Intermittent and Remittent, though he regards it both as more proper and more useful to distinguish them from each other. The following are the pathological appearances found in those who die of remittent:

"If death takes place early, the surface is only tinged slightly yellow; if later, the yellow tint is deeper and more general and extensive. A dark livid or marbled appearance of the shoulders extending to the hind-head is almost

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invariable. Livid blotches or spots on different parts of the person, especially those which were subjected to pressure, are not uncommon; and the scrotum is often livid. Petechial spots are occasionally seen; the belly is tense and tympanitic; and swelling and suppuration of the parotids are sometimes observed."

"The membranes of the brain are always more or less, sometimes very much injected and reddened; serous fluid is effused into the subarachnoid tissue, elevating the arachnoid membrane, and giving it an opaque thickened appearance, simulating coagulable lymph. The convolutions are more or less flattened. The hemispheres often preternaturally adherent. The substance of the brain is firm, but always more vascular, and presenting more numerous minute points and fissures effusing fluid blood than natural. The ventricles contain fluid which is occasionally limpid and colourless, occasionally slightly yellow."

"The lungs are always more or less congested, with dark coloured blood, sometimes presenting appearances of inflammation, as effusion of frothy serum into the pulmonic tissue, and some degree of induration. Lymph is occasionally effused, connecting the pulmonic and costal, and the pulmonic and diaphragmatic *pleura*, with serous fluid in the general cavity of the membrane. The pericardium is in general reddened and injected, and its cavity occupied with more or less serous fluid. Clots of blood and fibrinous matter are found in the right side of the heart and the pulmonary artery, less on the left side."

"The liver is generally rather larger, and more gorged with blood than natural; and the gall-bladder moderately filled with thick ropy bile."

"The peritoneum is in general dull-coloured and grayish, void of its usual lustre, and covered by a ropy glutinous exudation. The omentum is shrivelled and shrunk. The mesenteric vessels are loaded with dark-coloured blood, and sometimes minutely injected. The stomach and intestines are much distended with air, and contain more or less dark-coloured muddy fluid like coffee-grounds, which also tinges the mucus adhering to their mucous membrane. When this is removed by washing, the mucous membrane is found much congested and injected with numerous well-filled red-vessels, and occasionally studded with red arborescent or arteroid patches."

"The spleen is generally soft, flaccid, and sometimes completely broken down."

"The urinary bladder is contracted in size, and contains generally a little turbid high-coloured urine; and its mucous membrane is more or less injected with blood."

"The kidneys are more or less injected, and their vessels often loaded with thick semifluid blood."

"These appearances, which indicate the effects of the febrile action on the different organs, show that the force or violence of the action, though operating generally on the whole system of capillary vessels, had nevertheless been most detrimental to the powers of life, by acting on the capillaries of the brain, its membranes, the lungs, the stomach and ileum, and the liver and kidneys."

There is no doubt, he continues, that the vascular system of the muscles must be very much overloaded with blood. The loaded state of the lungs also, and the frothy, ropy, blood-coloured serum found in them is the result of imperfect circulation in the pulmonary artery. One of the effects of the febrile action is doubtless to interrupt the circulation in the pulmonary capillaries, and thereby cause congestion and a sort of passive peripneumony.

The diseased action, though diffused over the whole frame, may be distinguished into three stages. The first is when the head is most affected and the distension of the cerebro-meningeal vessels most conspicuous; and the close of which is marked with temporary abatement, corresponding probably to the commencement of effusion from these vessels, &c. The second is, when the disorder of the gastro-enteric mucous membrane becomes fully established, which is indicated by increase of the burning pain

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at the pit of the stomach, incessant vomiting, first of slimy matter, then of dark-coloured fluid, &c. This stage often terminates fatally; but if it do not, the third stage, that of oppressed respiration and pulmonary *asphyxia* ensues, and terminates at once the disease and the life of the patient. The dark-coloured fluids ejected by the stomach, proceed from the disorganization of the capillaries, which allows their contents to flow into the cavity of the stomach and intestines. The blood becomes stagnated in these vessels, as they are unable to transmit it to the veins. They are distended beyond the power of spontaneously recovering themselves, and thus finally become disorganized. Dr. C. believes it to be a very erroneous notion, that the yellow tint of the eyes, and the skin of the head, neck, &c. is occasioned by effusion of bile. On the contrary, it is produced by the disorganization of the capillaries of the brain and the gastro-enteric membrane, and the effusion of the sero-albuminous fluid in the former organ, and the sero-sanguineous in the latter. The capillaries of the skin are in the same state of over distension as elsewhere. The stagnated blood undergoes a partial separation, and the numerous minute vessels which at the onset of the fever gave the face and eyes the red and ferrety aspect, now give a yellow tinge.

The summer and autumnal remittent, Dr. Craigie considers as identical with yellow fever.

The general intentions in the treatment of this disease, are to unload the capillaries, especially the cerebro-meningeal; and to prevent effusion, the decomposition of the blood, and capillary disorganization.

In the first place, remedies must be employed which act on the capillaries in general and on the head in particular; such as venesection to fifteen, twenty, or twenty-five ounces; shaving the scalp, cupping, cold lotions and affusion, and blisters. The venesection to be repeated when the continuance of the symptoms render it necessary, and leeches applied to the abdomen. Purgatives.

Secondly, remedies must be resorted to which act upon the circulation in the gastro-enteric mucous membrane. Leeches should be applied to the abdomen, not with the same view as in the former case, of relieving the brain by derivation, but in order to relieve the capillary distension in this part. Calomel should also be employed with this view.

Thirdly, remedies which act upon the circulation of the cutaneous capillaries; such as saline diaphoretics and diuretics, cold affusion to the head, and warm fomentations to the extremities.

For alleviating the distressing symptoms of constant epigastric burning and anguish, hiccup, and frequent vomiting of dark-coloured fluid; ether, sulphuric, or nitric, ammoniated tincture of valerian, camphor, musk, and carbonate of ammonia are useful in different cases. Dr. C. considers the use of calomel, except as a cathartic, as proved to be useless or injurious.

Yellow Fever. Dr. Craigie considers intense heat as contributing most powerfully to develope yellow fever. The circumstance which appears most general, he says, is that of a calm, windless state of the atmosphere, preceded often by a train of weather uncommon in the particular place of its occurrence. In the West Indies, it is observed, that seasons in which there is the usual compliment of gales, tornadoes, &c., have been free from fever; while the seasons most remarkable for sickness have been equally remarkable for calm weather and absence of winds. The electri-

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cal state of the atmosphere has probably its effect in producing the disease. In ordinary circumstances the positive and negative electricities are exactly balanced, but at certain periods, particularly when the sun approaches the meridian of any given place, this equilibrium is subverted; and in order to restore it, not only thunder storms, but often violent hurricanes and torrents of rain take place. Previous to these explosions, there is reason to believe that positive electricity is slowly and gradually accumulated in the atmosphere, and it is this condition that appears to favour the disease.

After a survey of the various opinions in regard to the causes of yellow fever, our author draws the conclusion that it is a disease proceeding not from the influence of terrestrial *miasmata* or mere local peculiarities alone, but from atmospherical peculiarities entirely; which, however, operate much more directly and forcibly in situations favourable to the production of terrestrial emanations. While ague is the product of the marsh, and remittent is the effect of a more concentrated form of the same exhalation from any moist surface in the process of solar desiccation, yellow fever appears to be the exclusive product of that state of atmosphere which takes place after a long continuance of solar heat, with little or no wind, in those points chiefly where the action of the sea and land are in constant communion and interchange. It is rare in the interior, or even upon the margin of great rivers, further from their mouths than the extent of the tides. "Yellow fever becomes epidemic, neither in consequence of intense temperature alone, nor humidity alone, nor filth, nor the presence of foul docks and wharves, nor desiccated marshes, nor decomposed cabbages, or coffee, or mangroves, nor even charred shipholds, but a certain condition of the atmosphere, which recurs at very uncertain intervals, and of the recurrence of which the circumstances now enumerated are indications."

Dr. Craigie considers the rapid decomposition of vegetable substances, not a *cause* but an *indication* of a febriferous state of the atmosphere. He draws certain conclusions in regard to the propagations of the disease which he expresses in the form of ten aphorisms; the first two of which are the principal. These are in substance, that yellow fever is the spontaneous product of the atmosphere, operating on the sea coast or beach, in tropical or warm climates, and in hot seasons elsewhere. Whether regarded as the ordinary remittent modified by atmospheric agency, or as a distinct and specific disease, its formation and development always depend on climate and atmospherical influence, co-operating with local causes. 2d. If these causes are admitted they will continue to exist after the first appearance of the epidemic. It is therefore unnecessary and unphilosophical to resort to the assumption of personal infection or transmission.

With regard to the pathology of yellow fever, Dr. C. concludes that by carefully comparing the combined succession of phenomena in the living frame during the disease, with the appearances presented by the organs after death, we shall arrive at the conclusion that it is a peculiar subversion of the action of the capillaries of the whole system tending to the disorganization of that vascular net work; and proving fatal by the deleterious influence of this subverted action on the brain and its membranes, and the stomach, duodenum, and ileum. This process is not *increased action.* The action of the heart, indeed, is at first augmented by the irritative stimulus in the capillaries, in which the real seat of the disorder is established.

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"The action of the capillaries and exhalents is impaired, enfeebled, and deranged; the motion of the blood is thereby retarded and finally interrupted; the requisite changes are not effected; and while the capillary system is thus overloaded with dark unchanged and unrespired blood, which speedily becomes disorganised, their apertures eventually give way, and allow the escape of serum or blood in various tissues and organs. Thus, discharges of serum or blood take place into the cerebral chambers; and serum with albuminous flakes first, and disorganized blood afterwards, escapes into the cavities of the mucous organs, as the stomach and intestines."

This is the source of the coffee ground discharge. This stagnation and disorganization of the circulating fluid, pervades the capillaries of the mucous surfaces generally, and those of the skin. Incisions into these parts show that the constituent parts of the blood are broken down and extravasated. While in some parts serum is effused only; in others, serum tinged with a faint brownish red, and in others, actual imbrowned blood, void of its usual cohesion and tenacity, is effused. This is a real disorganization of the circulating fluid.

Yellow fever consists, therefore, in a general affection of all the capillary vessels of the whole frame and all the organs. The vascular disorder is most conspicuous in the brain, in the gastro-enteric mucous membrane, and in the skin. The primary cause of this vascular disorder may be referred to two heads; 1st, an affection of the containing vessels; and 2dly, some change in their contents. Which is the primary one, is doubtful. It seems almost certain, that the solid tissues of the vessels are in some manner deprived of their usual properties, and are, for the time, rendered unable to circulate the blood and contribute to the different secretions. Hence they become congested.

Among the various hypotheses in regard to the supposed changes in the blood, Dr. C. regards that of Dr. Stevens as the most tangible and intelligible; that in yellow fever, as in other fevers, the blood is deprived of its saline impregnation and alkaline properties, and hence becomes darker, less fluid, and less fitted for use. This hypothesis, he says, may be applicable in some cases but not in all. The most intense yellow fever attacks some Europeans so immediately after their arrival in a tropical part, that it is impossible to suppose that the constitution of the blood had, in so short a time, undergone so great a change; and conversely, persons who have been long exposed to the action of causes that might, according to Dr. Stevens, deprive the blood of its saline impregnation, are not more frequently attacked with yellow fever than others. In tropical climates, where yellow fever principally takes place, it has been observed, that all the secretions are more saline than in temperate. In short, all that can be concluded on this point is, that we have no positive facts on the influence of the changes in the chemical or mechanical qualities of the blood, in producing yellow fever.

The treatment of yellow fever recommended by Dr. Craigie is in conformity to his views of the pathology of the disease. He thinks that two objects are to be kept steadily in view. The first is, to abate and remove the excessive congestion and distension of the capillaries, so as to prevent stagnation and consequent extravasation. The second is, to employ such measures as tend to restore and maintain the various secretions. For the first object, the great means are general and local blood-letting, efficient purgatives, and cold applications to the head, such as the douche, iced water, or bladders filled with ice. Calomel from six to ten grains, with

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scammony or extract of colocynth, &c. For the second intention, the body should be washed with soap and warm water; the patient enveloped in blankets wrung out of hot salt water, and the cold affusion applied to the head. Acetate of ammonia, James's powder, antimonial powder, either with or without calomel, may be given in equal parts of ten grains each, every second or third hour. Blisters, sinapisms, &c., are sometimes useful. When there are symptoms of obstruction in the liver, calomel or blue pill may be given after the active symptoms have terminated.

Where the character of the symptoms is that of congestion of the whole vascular system, and consequent oppression of the vital organs and restraint of all their actions, medical treatment is much less efficient and must be greatly modified. Venesection is improper, because, although the large vessels may be emptied in this manner, the capillary system is not so promptly relieved. The principal remedial agents should be the warm bath, soap and hot water, after which the skin should be rubbed dry with a flesh brush; spirituous and stimulating embrocations are useful. If venesection is indicated by any particular symptoms, it may be employed to the extent of ten or twelve ounces, also cathartics or enemeta, and calomel. M. Dalmas, Dr. Stevens and others have censured the use of calomel. The latter, Dr. G. W. Stedman, and others, have employed saline remedies, given in such a manner as not to purge, as is averred, with great success. Dr. Craigie observes, that the principal objections to the results given by Dr. Stevens, are that the success seems too great for the means used.

Dr. Craigie proceeds next to continued fevers. Of these he makes four varieties. The first of these is synocha, or simple inflammatory fever, inflammatory fever without any particular local affection. The pathology of this he conceives to consist, like that of the fore-mentioned fevers, in a congestion of the general capillary system.

Dr. Craigie, as we have already mentioned, considers it very doubtful whether any case of fever is, at the onset, attended with any peculiar local affection. In every fever, there is to a greater or less degree an affection of the whole capillary system, and as the disease advances, some sets become more diseased than others. In this way, only can a local affection exist. It comes then simply to be a question whether the description is taken from the beginning or the termination of the whole course of disease. If a fever come to its termination on the second, third or fifth day, it may do so without manifesting any particular direction. It is true that such febrile attacks seem to be attended with the suppression of some habitual discharge, such as menstruation, for example.

Dr. C. divides continued fevers into, first, simple fever with much affection of the sanguiferous system. Secondly, fevers in which the derangement of the circulation is connected with distinct disorder of one or more vital organs, and a tendency to disorganization or disruption of the capillaries.

In the latter class is gastric, gastro-splenic, or gastro-enteric fever. A. With disorder of the stomach or spleen, intestinal tube, or liver. B. Fever with general affection of all the tissues and organs, and tendency to capillary disorganization in the most vascular.

a. Slow nervous fever; *b.* putrid or pestilential, spotted or malignant fever. *c.* Common or mixed continued fever.

Our author divides his second class of fevers into the three varieties above named; gastric, gastro-splenic or gastro-enteric, according as the stomach, spleen, or intestines, are most affected.

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"The entero-mesenteric fever of Petit and Serres, in which the aggregated glands of the intestines are affected, must be regarded as an intense form of the latter disease, (intestinal fever,) or as fever taking place in persons who have previously laboured under *dothinenteritis*."

In proceeding to the division B. Dr. Craigie remarks that there is reason to doubt whether physicians and medical observers have attended with sufficient care to the distinctions of the different kinds of continued fever established by Cullen. This author says, "I think that the limits between *synochus* and *typhus* will be with difficulty assigned; and I am disposed to believe that the *synochus* arises from the same cause as typhus and is therefore only a variety of it." We give these words as quoted by Dr. Craigie, because the authority of Cullen has lately been adduced as an obstacle to the abandonment of the distinction between typhus and synochus, which the advancement of our knowledge on the subject of fever has apparently rendered expedient. The quotation above, together with a note also quoted by Dr. Craigie, shows that Cullen considered typhus and synochus to differ principally in degree.

It seems somewhat surprising that Dr. Craigie, writing in 1836, makes no mention, either in his text or in the list of books at the head of his chapters, of the most recent authors upon the subject of fever. He says nothing of Louis, nor even of Southwood Smith or Tweedie. This may perhaps be accounted for by this part of the work having been written, as it would seem, at a date considerably antecedent to its publication. We find references to later works, as we proceed in the volume. This omission in regard to fever is very unfortunate, since the labours of Louis have created a new æra in medicine. The universal acceptance, which the observations of this writer have met with, and the general adoption of his methods of inquiry, open on an entirely new field of discovery in regard to the subject, and make our knowledge constantly progressive.

Dr. Williams (Elements of Medicine) unites typhus and synochus under one head. Dr. Jackson of Boston, whose opinions, from his experience, the opportunities for examination he has enjoyed, and the attention he has given to the subject, are worthy of the utmost respect, considers the typhoid fever of New England and probably that of Old England as the same with that of Louis, while the typhus fever described by Dr. Gerhard in this Journal resembles that described by Dr. Lombard of Geneva, as witnessed by him in Ireland and also in England.

Our author describes in his last section of fevers; "fever with a tendency to gangrenous inflammation and affection of the glands."—The plague. Upon this subject, he gives us a full and well executed account of the plague, embracing the facts that have been made known by the various writers upon the subject. His views of its pathology are in coincidence with those in relation to other fevers. He thus sums them up:

"In short, I think it inevitably results from the anatomical facts and the symptoms of the distemper, that in plague the capillary system of the whole frame is suddenly smitten by a species of atony or loss of power of transmission, and that a consequent stagnation of blood and all its consequences ensue."

When this is intense and irreparable, it kills immediately; or within a few hours or a day at most; and the phenomena are those of death by *hæmastasis*. If the capillary vessels of the organs have sufficient energy to resist this species of sudden inertia, it is only at the expense of death taking place in certain points of the skin, and suppurative disorganization in the lymphatic glands.

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Dr. Craigie seems to adopt in regard to fever, a modification of the views of Cullen. Instead of *spasm*, Dr. C. supposes a *palsy* of the extreme vessels. How far it is philosophical to look to remote branches for the origin of a general disease, we have not opportunity to discuss. It is certainly more in accordance with common practice, if not with nature, to look to the fountain head for the source of the impurities which are found in the remote streams. Nor can we readily understand, how vessels, which pervade the whole surface of the body, should be suddenly and simultaneously affected by an external cause, unless by the agency of a power which has generally been conceived to belong to the nerves alone —the supposed instruments of sympathy of distant parts. If this power is conceded to the capillaries, we have then two sets of vessels possessing similar powers. On the other hand, if the nerves are the agents by which this consent or simultaneous action is produced, we are brought back to the doctrine of Southwood Smith and others, which makes the nerves the parts primarily affected in fever; which doctrine is rejected by Dr. Craigie.

We come next to the second part of the volume, Book II, which treats of inflammations. The account of general inflammation need not detain us. The subject is a familiar one, and perhaps we have not as yet any writer who can compete with John Hunter in authority; and therefore we are not to look for any thing very new. Dr. Craigie draws from familiar sources, Hunter, Thompson, James, &c., and his views of the proximate cause of inflammation agree with those on fever; that it is seated in the minute vessels arterial and venous, termed the capillaries.

He treats of inflammations as they appear. I. In the skin. II. In the mucous membranes. III. In the serous membranes. IV. In the compound organs. V. In various tissues, simultaneously or successively.

Our author considers all cutaneous affections as merely different forms which inflammation may assume in the skin. 1st. Cutaneous inflammation may be seated in the exterior or cuticular surface of the chorion. 2dly. It may be found round the *papillæ* or minute elevations of the chorion. 3dly. It may affect the substance of the chorion. 4thly. It may occur at the inner or attached surface of the chorion.

Dr. C. undertakes to classify inflammations of the skin, according to the part of it in which they are seated, according to the mode in which the inflammatory action proceeds, and according to the effect which it produces.

He makes the eight following divisions.

1. Diffuse or Spreading Inflammation, such as Measles, Scarlet Fever, &c.
2. Effusive Inflammation, such as Erysipelas.
3. Punctuate Papular Inflammation, such as Strophulus, Prurigo.
4. Punctuate Desquamating Inflammation, such as Lepra.
5. Punctuate Vesicular Inflammation, such as Herpes.
6. Punctuate Phlegmonous or Pustular Inflammation, such as Variola.
7. Punctuate Chronic Phlegmonous Inflammation, such as Boil, &c.
8. Punctuate Phlegmono-Tubercular Inflammation Chronic, such as Elephantiasis.

The subject of venesection in scarlet fever is one about which there has been much controversy. Our author says it should be used only where there is much oppression or pain of the head or chest, after the eruption is out, and at the early stage of the eruption. When employed, fifteen,

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twenty, or twenty-five ounces of blood should be taken in case of the adult.

In regard to erysipelas or "rose," our author seems to make no distinction between the erysipelatous fever of Sydenham and the erysipelatous inflammation of John Hunter; for while he includes the former among his synonymes, with rosa, erysipelas, St. Anthony's fire, ignis sacer, &c., he tells us that John Hunter is the first who has observed the disease with a discriminating eye. He does not hint that there may be any thing peculiar in the inflammation, but regards it as a *burn* produced by an internal cause. In a recent number of the Edinburgh Medical and Surgical Journal, Dr. Craigie has given an account of what he considers to be diffuse adipose inflammation, which will include much of what has heretofore been described as erysipelas. The various classifications that have been made of diseases which have had at some time the appellation of erysipelas, have formed a skein so entangled, that it is no easy task to say what is and what is not erysipelas. We think, however, that until the subject is better understood, there is ground for the distinction between the erysipelatous fever of Sydenham and the erysipelatous inflammation of John Hunter, although they may be convertible and of the same nature. We have our doubts, also, whether the disease, or peculiar eruption caused by eating certain fish, can properly be considered as erysipelas, as it has been by our author and many other writers, for one reason among others, that it occurs in healthy persons, not predisposed to erysipelas, while erysipelas requires a certain state of constitution to favour its reception.

The treatment of erysipelas our author would have conducted on the general antiphlogistic plan, adapting it to the particular form of the disease; and considering the indications to be to relieve capillary oppression. Of course, the employment of tonics, which has lately been revived at some of the English hospitals, is entirely averse to this, and we find no mention of their use. Dr. Craigie does not profess to give an account of the various modes of treating diseases, but only those methods which he considers best.

It has become a matter of considerable interest, to know with certainty, how far the immunity afforded by cow-pox against the attacks of small-pox extends, and what reliance is to be placed upon it. It has been supposed by most physicians, until recently, that the opinion entertained by Jenner, of the perfect protection afforded by vaccination when well performed, was correct. Recent experience, however, has proved that this is not exactly the case. According to Dr. Craigie, the researches of Dr. Thompson of Edinburgh, and of many others, have shown that Jenner's views must be received with the following modifications.

"The human body is liable to be attacked with small-pox more than once in the duration of life. Every previous attack modifies that which follows; and a person who has once undergone the disease, though he may be subsequently affected with it, undergoes it in a different form. In the same manner, an individual who has suffered cow-pox may be attacked with small-pox, exactly as one who has suffered small-pox may be again attacked with that disease. A person, however, who has suffered cow-pox, is not only much less likely than another to be affected with small-pox even when epidemic, but will certainly have them in a much milder form, and in a form which is almost impossible to prove fatal. He may have the disease in what is termed the *modified form*, or in that named chicken-pox; and according to the experience of the epidemic of 1816—1820, one death takes place in 330 thus affected; and it is probable that

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more extensive experience would show the proportion of mortality to be much greater than it really is."

The extent of Dr. Craigie's volume allows of pretty full treatises upon the most important diseases discussed; and we find a very full account of small-pox. Under this head, he resumes the subject of the protection afforded by vaccination.

His conclusions are as follows:

1st. Small-pox, though, in general, it occurs only once during life, may, however, attack a second or even a third time.

2d. A second attack is more frequent when the first is mild. If the first attack be confluent, a second is rare.

3d. An attack of spurious small-pox, or of chicken-pox, does not secure from the confluent small-pox.

4th. Small-pox from inoculation does not secure from the natural small-pox.

5th. Every previous attack modifies the subsequent.

6th. The most powerful modifying agent of small-pox is cow-pox; vaccine and variolous matter applied together, counteract each other.

7th. Cow-pox destroys the susceptibility to inoculated small-pox almost entirely, but the susceptibility to the natural disease or that by inoculation, it does not extinguish. This susceptibility, however, it diminishes in a much greater degree than inoculated small-pox.

8th. The susceptibility to a second attack of small-pox, and to attacks of small-pox after inoculation, is principally favoured by the existence of an epidemic constitution of the atmosphere, and by early life, especially an age below ten years. If no epidemical constitution take place, the occurrence of second attacks may not be observed for a long series of years. But if the atmosphere acquire an epidemic or variolous constitution, neither the circumstance of a previous attack, nor vaccination, can secure many of those under ten years of age, and but a few between that and thirty, from small pox.

On the subject of chicken-pox, Dr. Craigie, after mentioning the views of Dr. Thompson, in regard to its identity with small-pox, expresses the opinion that the exquisite and well-marked cases of chicken-pox may be distinguished from exquisite and well-marked cases of small-pox; while other cases glide into each other.

It would seem that this question might be very easily settled. Small-pox is confessedly one of the most contagious of diseases—one of the few that the most zealous anti-contagionists make no dispute about. Now, chicken pox is a very common disease, and if it can be proved in any one case to have produced small-pox, there can be no doubt that they proceed from the same virus. We do not know that any such case has occurred. If in a disease so common as chicken-pox, this has never been proved to be the case, we think the distinction between them is well founded.

Our author describes several cutaneous diseases, which have been little noticed by writers in general, and which are not known among us; such as Sibbens, Radesyge, Asturian Rose, Pellagra, Cayenne Leprosy, &c. These we shall pass over, and proceed to the second chapter of Inflammations—inflammation of the mucous membrane. He gives the following account of the commencement of inflammation in this membrane.

"When a mucous membrane is attacked with inflammation, besides the usual phenomena of redness, heat, pain, and swelling, it presents other phenomena in

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the change or perversion of its action. It is first unusually dry, and then begins to secrete a thin serous fluid, which principally, from the rawness of the surface, seems to possess acrimonious or irritating properties. The surface of the membrane is raw, sore, and extremely tender; and the application of foreign bodies produces much uneasiness and distress. After the lapse of a few hours or a day, sometimes a longer space, the preternatural dryness abates, the thin serous fluid becomes thick, and more or less copious, and though the rawness, tenderness, and soreness, are little abated, or may continue unchanged or even increasing, the redness is less deep, and the swelling less intense."

This state may either suddenly ensue upon an apparently healthy state of the membrane, or it may come on more slowly after the membrane has been raw, tender, and sore, and sensitive to the air or to the application of foreign bodies. In the first case, the inflammatory process is the immediate and direct consequence of the action of the exciting causes on the membrane. In the second case, it is preceded by a state of general soreness and suffering, which does not admit of the application of foreign bodies, or the performance of the usual motions which the membrane may undergo in the state of health without producing uneasiness. The latter state is denominated irritation, into the doctrine of which our author enters very fully.

Dr. C. adopts the terminations in *ia* instead of those in *itis*, to distinguish inflammation. Thus we find bronchia for bronchitis, gasteria for gastric catarrh, ureteria for inflammation of the ureter, urethria for gonorrhœa, colonia for dysentery. It is much to be regretted, that one nomenclature cannot be adhered to, and universally employed.

We pass over ophthalmia, coryza, otitis, tympanitis, and aphtha, and come to angina diffusa or gangrenosa. This is the sore throat that in general accompanies scarlet fever, but which sometimes occurs as a distinct disease. The next described disease is croup. Upon this subject our author has little that is novel. We are in the habit of considering that true croup is always fatal; if it is not fatal, it is not croup. Our author informs us that the disease may terminate favourably in three days.

"*First.* After the symptoms have attained a considerable height, they gradually recede. The pulse becomes fuller and softer, generally less frequent, though this is not so conspicuous; the skin becomes moist, the cough loose, and the breathing easy, and the voice gradually recovers its natural tone. *Secondly.* After the disease has continued a few days, a white viscid tubular substance, of the consistence of membrane, and hence termed the membrane of croup, is expectorated, and the child is relieved. The discharge of this substance, however, produces in general, a mere remission of the symptoms, and does not affect the course of the disease. *Thirdly.* Croup may be a more chronic affection, and not subside for several weeks, when the resolution is gradual; the child expectorating puriform mucus freely, and now and then membranous films."

Dr. C. distinguishe. cynanche laryngea, which he says is still confounded by many writers, both in Great Britain and elsewhere, with croup. Dr. Good and others made this distinction long ago, and we believe it has been pretty generally adopted.

Chronic catarrh or bronchitis is described by our author as the most frequent of pulmonary complaints; and he says that it may be considered as certain that in the greater number of consumptive cases, chronic inflammation of the bronchial membrane is either the principal or the only pathological action. He quotes Rush as his authority for the prevalence

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of the complaint in America generally. But upon this subject, the authority of Rush must be considered obsolete. Fatal cases of chronic bronchitis we believe are very rare, and post-mortem examinations show the existence of tubercles in the lungs of all, or nearly all of those who die from consumption. Dr. Craigie describes another variety of bronchial inflammation, chiefly distinguished by the nature of the exciting cause.

"Foreign bodies, such as teeth, natural or artificial, pieces of metal, wood or bones, which pass the glottis and drop into the windpipe, if they do not produce immediate suffocation, cause irritation of the windpipe, *bronchi*, and bronchial membrane, indicated by fits of coughing, more or less continued and severe, wheezing, breathlessness, and weight and oppression in the chest."

"2dly. These symptoms of irritation are speedily succeeded by symptoms of inflammation, sometimes acute, sometimes chronic, but always afterwards becoming chronic, indicated by cough, expectoration of dense puriform or purulent mucus, occasionally streaked with blood; weight and anxiety in the chest, quick pulse and eventually hectic fever with wasting."

"3dly. These bodies, there is reason to believe from their size and shape, must be arrested in the larger or middle sized bronchial tubes; and it must be anatomically and physically impossible for them to descend into the smaller tubes or the pulmonary vesicles."

"4thly. In all the recorded cases, the symptoms, however intense during the abode of the body in the *bronchi*, and though enduring for the space of from six to seven weeks, as in the cases of Borsieri, Dr. Donaldson, and Dr. J. Scott, to that of several months, as in the case by Dr. Lettsom, that of Dr. Nooth, and the case by Mr. Howship, rapidly subsided as soon as the foreign body was ejected."

On the whole, our author seems to be more of a conservative than a reformer in medicine. We find that his references and his bibliographical lists contain the names chiefly of those whom time has rendered venerable or at least has confirmed and sanctioned, while more recent medical literature is treated with neglect. Our readers must not, therefore, resort to the work with the expectation of finding much novelty. It is valuable as a compilation, drawn from the best established sources, in which the reader will find the various opinions and observations of authors of reputation drawn into small compass, and as far as possible reconciled. The task our author has attempted is no easy one, and one which he could not be expected to accomplish in an altogether faultless manner. At least it cannot be expected that any general treatise on medicine in which the author expresses his own opinions, or attempts to reconcile those of others by his own judgment and experience, will not contain many errors and omissions in the eyes of those whose opinions differ from his. Dr. Craigie, as this work testifies, is well qualified from his sound judgment, learning, and research, to execute such an undertaking, and we consider his treatise a very valuable one both to the student and the medical practitioner.

E. W.

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BIBLIOGRAPHICAL NOTICES.

ART. XIII. *Zur-Jubel Feier des Professor Emeritus, Dr. Johann Busch, in St. Petersburg, am 26sten Mai*, 1838. 4to pp. 32. St. Petersburg, 1838.

THIS appears to be an address delivered at a jubilee given to Dr. JOHN BUSCH, on the completion of the fiftieth year of his professional life, May 26th, 1838, by the Association of German Physicians in St. Petersburg, of which Society Dr. Busch was one of the original members, and for many years Director.

The address comprises a brief sketch of the origin and objects of the association, and of its transactions since its organization in 1819, to the period when the jubilee took place.

The very concise manner in which most of the subjects of a practical interest, embraced in the address, are treated, prevents us from giving any thing like a satisfactory account of them.

The following brief notice will enable our readers, however, to understand the general scope of the address.

In presenting a notice of the various papers contained in the several volumes of the Society's transactions, general allusion is made to the extensive experience of Dr. Harder, in regard to the efficacy of cold affusions in various complaints. In scarlet fever, in bronchitis and in croup he has found decided benefit from their employment; the peculiar circumstances under which the remedy is administered are not, however, detailed. An almost hopeless case of croup successfully treated by this remedy was reported to the Society by Dr. Müller; and its curative powers in mania, hypochondriasis and melancholia are fully confirmed by Dr. Mylius. A general view is given of the epidemical constitution of the atmosphere at St. Petersburg, for the last nineteen years, which is too long for insertion in the present bibliograph, and will not well admit of condensation.

Appended to the address are the outlines of an interesting case of bony tumour on the occiput, with a lithographic illustration.

The patient, a miller by trade, was admitted, in his eightieth year, into the hospital, in consequence of inflammation of the brain, where he died. According to his own account, in his sixth year the tumour on his occiput had first appeared, subsequent to the sudden disappearance of an eruptive disease of the scalp. Poultices were applied to it, under the use of which it became soft, and breaking, gave discharge to purulent matter, which continued to flow for a long time; the opening, however, finally closed. The size of the tumour, which was then moveable and without pain, decreased. In his twentieth year the patient consulted many physicians, by whose advice, after fruitless attempts had been made to empty the tumour of its supposed contents by puncturing it, a ligature of silver wire was applied around its base. The inflammation and pain to which the ligature gave rise, caused this plan of treatment, however, to be speedily relinquished. The tumour which had hitherto been movable had now become firmly attached to the occiput, and on its right side presented a stellated cicatrix at the spot where the puncture had been made. No further attempts were instituted for the removal of the tumour. At the period of the patient's death, the tumour had a somewhat oval form, and measured at its greatest circumference one foot eleven inches and a half,—across, from ear to ear, one foot seven inches and a half—at its basis, one foot three inches and a half, and from its upper to

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its lower part one foot nine inches. It was covered by the hairy scalp, which was so stretched in consequence, that the hairs upon that portion which appertained to the tumour stood further apart from each other than upon the head. The scalp as it passed from the tumour to the back of the neck formed a fold or duplicature nearly three inches thick, forming at the sides of the neck deep depressions, presenting a peculiar wrinkled appearance. The stretching of the scalp had caused the external ears to acquire an enormous size. The internal structure of the tumour was composed of a cellulated mass of bone as hard as ivory. In the cells was contained a yellow substance resembling spermaceti. The united tendons of the musculus epicranius, trapezius and digastricus cervicis were in their course spread out over the tumour. The galea aponeurotica was folded around the basis of the tumour, and from beneath it innumerable small vessels passed into the substance of the tumour. By the pressure of the latter, which weighed ten pounds, the outer table of the occipital bone, from the occipital protuberance to the foramen magnum, was entirely destroyed, and the posterior arch of the first two cervical vertebræ were reduced to a thin plate of bone.

Together with a lithographic drawing, a somewhat remarkable case is given of a bifurcation of the aorta, in a boy three years old, which is deficient, however, in many important details.

The patient had been admitted into the hospital for infants, the preceding year, in consequence of an inflammation of the chest, and discharged cured. On the 4th of January, 1838, he was again admitted. He now complained of a peculiar pain in the left side of the chest—the respiration was impeded; the action of the heart unnaturally strong; the pulse small and contracted. The countenance exhibited a peculiar expression of anxiety, and the cheeks had a slight bluish tint. After the repeated application of leeches to the chest, and the use of digitalis inwardly, an apparent improvement took place in the patient's condition. The same symptoms, however, soon reappeared; and on the eighth day of his residence in the hospital, œdema of the feet occurred with anasarcous swelling of the other parts of the body; the general symptoms appearing at the same time to be relieved. The case remained in this state, until the 13th of January, when the patient, after a slight supper, suddenly complained of great difficulty of respiration, and, with a slight cough, discharged a quantity of mucus intermixed with a portion of bright coloured blood. The pulse soon became intermitting, the extremities cold, the cheeks assumed a bluish colour, and the whole countenance exhibited the utmost anguish. Four ounces of blood were taken from the arm, which for a short period gave great apparent relief; but hiccough and death soon followed.

On opening the body a considerable collection of blood was discovered in the left side of the chest, and evident traces of cardiac inflammation. Besides these, the aorta was found to be bifurcated at its upper extremity, forming an arch to the right, and one to the left; from the right arch was given off the right subclavian; from the left, the left carotid and left subclavian, while the right carotid arose from the part at which the two arches united below to form the thoracic aorta, at which spot the vessel presented a sack-like enlargement.

A brief notice is given of a curious case of urinary calculi, with a drawing of the kidney and bladder of the patient, exhibiting a rather uncommon diseased condition of these parts. We translate the entire note of the case.

"I. M., 35 years old, had complained for many years of symptoms indicative of urinary calculi; admitted into the Surgical clinic of the the Medico-chirurgical academy of St. Petersburg, with symptoms of gangrene of the abdomen; in the course of ten hours death occurred. The autopsy exhibited an inflammation of the urinary bladder which had terminated in gangrene, and also a gangrenous abscess of the left kidney, extending thence downwards to the pelvis. There existed in the thickened and contracted bladder a round calculus of the size of an egg; three other calculi, each about an inch in diameter, lay in a cylindrical, membranous sac which occupied the space between the bladder and rectum. This sac opened below into the bladder near the orifice of the right ureter which was somewhat dilated, and above it

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communicated with the abscess in the kidney. Both kidneys were in a softened condition, and their cortical substance was almost entirely destroyed."

D. F. C.

ART. XIV. *Dissertatio Medica Inauguralis de Cartilaginum articularium ex morbis mutatione.* Auctore L. H. SCHUMER, Jr. Groningen, 1836. 8vo. pp. 64.
An Inaugural Dissertation on the Morbid Changes occurring in the Articular Cartilages. By L. H. SCHUMER, Jr.

THE object of this dissertation is to prove that the articular cartilages are inorganic, so far at least as regards the non existence in them of either nerves, blood vessels or lymphatics. The author endeavours to show, with much plausibility, that the proper articular cartilages are the result of an exudation from either the synovial membrane, or from the vessels of the extremity of the bones which form the joint, and consequently that all the morbid changes these cartilages undergo, are dependent solely upon disease of the parts by which they were originally produced. He has attempted to prove by direct experiments on animals, that where the most violent inflammation is excited in the joints, the cartilages present no indications, in any instance, that the disease extends to them; and even when to all appearance a part of them has been removed by ulceration, or they are entirely destroyed, leaving the ends of the bones denuded, this is merely the result of a softening of the cartilage caused by its immersion in the pus poured into the cavity of the joint from the inflamed vessels of the synovial sac.

The inorganic character of cartilages is, in the opinion of the author, established by the fact, that no vessels can be shown to enter in their structure by the minutest examination by the naked eye or by the microscope, even after the most accurate injection of the surrounding vessels—that blood has never been seen to flow from them when wounded, nor have they ever been observed to become reddened, like other of the white tissues, when subjected to irritation. In evidence of these statements, he adduces the testimony of Sebastian, Soemmering, Chassaignac, &c., and the results of his own experiments on living animals.

To show that the formation, nutrition and morbid changes of the articular cartilages are capable of a ready explanation, without supposing the existence in them of blood vessels and absorbents, the author adduces several facts of the production, reparation after injuries, and mutation from disease, of other parts of the body universally acknowledged to be inorganic in the proper acceptation of the term; as for instance, the cuticle, the lens of the eye, &c. There exists, he conceives, a very close resemblance between the physiological condition of the ocular lens and the cartilages of the joints. Both have their appropriate membranes, the lens its capsule and the articular cartilages the synovial sac, over both of which blood vessels are distributed. In the eye a fluid is interposed between the lens and its capsule, and in the joints, the synovia is found between the cartilages and the membrane.* The existence of blood vessels in the substance of the lens, or in that of the articular cartilages, has never been demonstrated. The author remarks that the lens has been supposed to be formed from and sustained by the fluid of its capsule, and he considers it possible that the articular cartilages may in the same manner be formed from, and sustained by, the synovial fluid which contains in solution all the principles that enter into their composition; he, nevertheless, considers it as more probable that the cartilages are secreted, and any reparation which takes place in them when injured, or morbidly affected, is caused by the blood vessels of the spongy extremity of the bones which they envelope.

The leading facts and experiments detailed by the author are certainly interesting, and important—his reasoning is very generally correct, and his main conclusions coincide with the opinions maintained by several of the most distinguished of the continental physiologists.

D. F. C.

* "In articulis inter cartilaginem et synovialem membranam itidem humor sc. synovia."

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ART. XV. *Dissertatio Medica Inauguralis, de Effectibus Tumorum uteri fibrosorum et Symptomatibus quæ iidem provocant.* Auctore JOHANNE ROEMER. Groningen, 1837, 8vo. pp. 44.

An Inaugural Dissertation on Fibrous Tumours of the Uterus, and the symptoms, and morbid changes to which they give rise. By J. A. ROEMER.

THE leading particulars connected with the various fibrous tumours affecting the uterus, are very accurately, though concisely set forth in this essay. In the details given by the author, we discover, however, nothing particularly novel, or which may not be found in the works of the recent writers on the diseases of females. The diagnosis of the ordinary tumours appertaining, strictly speaking, to the uterus, is by no means attended with very serious difficulty. In relation to their causes, and proper treatment, however, there is still much information to be acquired; but upon neither of these particulars, has the author of the essay before us, attempted to throw any light; hence, we have not considered it necessary to present any thing further than a general notice of the work. While, we may remark, it confers great credit upon the writer as an industrious and close observer, it is far too concise to convey to the practitioner the information he requires in relation to morbid affections of which it treats. D. F. C.

ART. XVI. *Meine Methode de Taubheit zu heilen.*
My mode of treating Deafness. By C. W. HUFELAND, M. D. Berlin, 1834.

THIS little essay is not so important from any novelty in the therapeutic views of the author, as because it conveys a striking impression of that fondness for multiplying remedies which seems to be peculiar to the German practitioner, and which, when expending itself on so delicate a structure as the ear, could hardly be indulged in without some hazard.

In all obstinate and deep-seated affections of the ear, the author keeps in view four indications. 1. To promote the activity of the skin, the functions of which will often be found to have been primarily disturbed. 2. To regulate the condition of the alimentary canal and of the digestive system generally. 3. To stimulate the absorbents of the ear itself.

The first step in fulfilling these indications, is to apply 6 or 8 cups to the back of the neck, for the double purpose of depletion and derivation. The patient is then ordered to take, morning and evening, half of the following powder: ℞, resin. guiac. ʒss. calomel, sulph. ant. aurat. āā gr. ij, eleosacchar fenieuli, ℈j. M. f. pulvis. This powder must be taken in such dose as to move the bowels two or three times daily, and may afterwards be increased or diminished according to circumstances. This treatment may be persevered in for 14 days, then omitted for 8, then resumed for 14, and so on for several months, until a cure is effected or its inefficacy becomes obvious.

At the same time with the above treatment, a piece of the following ointment as large as a pea, is rubbed over the mastoid process. ℞. pulv. canth. ℈ss; ung. ros. ʒj, M. so as to keep up a constant purulent discharge over a small surface and thus stimulate the nervous system of the ear.

In the next place a portion of the following powder is each day to be thrown into the nose. ℞. herb. marjoram, flor. lavand., sacchar. alb. āā ʒj; flor. convallar. majal., sapon. venet. exsiccat. āā ʒss; ol. caryophyl., ol. bergam. āā gtt. ij. M. f. pulvis. The sternutatory is intended for a double purpose; first, by means of the increased secretion from the Schneiderian membrane to effect a derivation from the Eustachian tube, and the ear in general; and secondly, to act as a direct stimulus upon this latter organ.

The next measure is to drop into the ear, morning and evening, a few drops of the following oleaginous preparation. ℞. ol. expres. amyg. ʒj ol. camphorat. ʒss; fell. taur. inspis. ℈j; ol. cajeput gtt. iv. M. The author is of opinion, that the employment of the ether as internal applications to the ear is attended with danger of inflammation. The oxgall which enters into the above prescription, is thought to have a specific effect in all diseases affecting this organ!

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These views are obviously behind the intelligence and knowledge of the age; and it may be presumed that in adopting them, M. Hufeland is in many respects giving us the routine practice of the last half century, very slightly improved by his personal observation. A brighter day has dawned on the treatment of aural diseases since the publications of Deleau, Itard, and Kramer, and the latter particularly has shown up the vagueness and empiricism of German practice in his own time with the happiest effect. That a practitioner of the undoubted good sense of Hufeland, could adopt so many of these unfounded and antiquated notions, is only one of many proofs which are constantly meeting our view, that the judgment even of men of science is rarely exercised without some admixture of fancy or of prejudice. E. G. D.

ART. XVII. *Essai sur la varicocele et en particulier sur la cure radicale de cette affection.* Par H. LANDOUZY. Journal des Connaissances, Medico-Chirurgicale, Jan. et Mars, 1838.

DESPITE the number of persons who suffer from the disease treated of in the above essay, it is only within a few years past that it has been much noticed by the profession, and has not yet received from them that attention which it merits. Regarded as incurable, except by methods which endangered the parts affected, or indeed the life of the individual, but few ever looked beyond the giving of temporary relief to those suffering from it. This is the more singular when we consider the frequency of the disease, and the urgent demands often made by patients labouring under it for a radical cure. The essay of M. Landouzy is more complete than any which we have yet seen on the subject; and with the hope that it may prove interesting to our readers and serve to call the attention of surgeons more fully to the affection, we now offer to our readers the contents of his paper on this hitherto neglected subject, premising that the term varicocele is used by him to designate enlargement of the veins of the spermatic cord as well as those of the scrotum.

In 27 observations in which the age of individuals affected with varicocele was noted, 7 were between 9 and 15 years; 17, between 15 and 25; and 3, between 25 and 35. The disease, however, may show itself at any age, though it is ordinarily from 10 to 30 years that the first symptoms of it are observed.

The cause of the greater frequency of varicocele on the left than on the right side of the body is explained by the anatomical disposition of the parts. On the right side the spermatic vein opens into the descending cava, in a direction almost parallel to the axis of this vessel, and consequently empties itself easily; while on the left side it gives into the emulgent vein at a right angle—a direction almost perpendicular to the returning venous current, thereby putting an obstacle to and impeding the circulation.

Some authors have attributed the more frequent occurrence of the disease on the left than on the right side, to the compression made upon the spermatic vessels of this side by the fœcal matters accumulated in the iliac portion of the colon, but according to M Landouzy this influence is not so great as is usually supposed, as on 17 patients whom he examined particularly in regard to this point, one only suffered from habitual constipation. The spermatic veins, too, are naturally larger and more tortuous on the left than on the opposite side. The left testicle is also larger, descends lower, and the column of blood contained in it is consequently longer and heavier than that of the right. Be the cause what it may, however, the fact is undeniable that the disease is generally found upon the left side, so generally, indeed, that in upwards of 100 cases seen by M. Breschet, but one only has been upon the right side. In addition to the causes above mentioned arising from the organization of the parts, there are other *occasional* causes which may be classed under two heads. The first acting by facilitating an afflux of blood towards the genital organs; the second by hindering its return towards the heart. In the first class of causes, our author places abuse of venereal pleasures, masturbation, and such passions as keep up a

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constant state of genital excitement; riding, dancing, violent exercise on foot, and all such causes as tend to determine the blood to the lower parts. It is in this class too, that he ranges contusions of the scrotum, inflammation of the testicles, which by keeping up during a long time, irritation and an afflux of blood to the part may finish by increasing the size of the vessels or by rendering them more sensible to the causes of accidental dilatation. The causes of the second order are much more frequent, and embrace all those which place an obstacle to the return of the blood towards the heart. Tumours developed in the abdomen, hernias, enlargement of the glands in the groin, hydrocele, &c.

Hypochondriasis and melancholy have been given as causes of varicocele; but M. Landouzy thinks without reason, looking upon the state of dulness and misanthropy with which patients labouring under varicocele are often affected, as the consequence and not the cause of the affection.

In some cases varicocele appears to be hereditary: an instance is cited by M. Blandin, of three brothers who were all exempted from military duty on account of the existence of varicocele, the father of whom was likewise affected with it.

Although the causes enumerated as giving rise to varicocele, may appear numerous, yet they will be found all, at times, either to produce or increase it. Less astonishment at this will be excited, when the exceeding frequency of this affection is recollected; so frequent, that after the calculations of Prof. Marjolin, it appears that about 60 out of every 100 persons are afflicted with it in a greater or less degree.

Symptoms and Progress. The symptoms by which varicocele is most generally announced in its early stage, are a feeling of weight in the testicle, in the groin, or in the lumbar region, lengthening of the scrotum, a rapid increase in the volume of the testicles by heat or after long walks.

Once developed, the disease is known by a tumour, soft, fluctuating and knotty, reaching from the superior end of the testicle to the inguinal ring. When very large, the disease is not limited to the superior end of the testicle only, but occupies the whole of the left side of the scrotum, the subcutaneous veins in such cases becoming much increased in size.

Although as a general rule varicocele increases slowly, yet in certain cases its developement and progress are exceedingly rapid, and give origin to violent symptoms. This is particularly the case when the affection follows an injury of the part. In illustration of this, M. Landouzy gives a case following severe contusion of the testicle, in which in the course of a very few months the disease had reached its highest point of developement. Like instances are also to be found in some of our writers. Sir A. Cooper, reports a case following a bruise of the testicle, in which the progress was so rapid, that three years afterwards castration was resorted to on account of the great inconvenience experienced from it. Pott also mentions similar cases.

Treatment. The palliative treatment of varicocele consists in the wearing of an elastic suspensoir and frequent cold bathing of the parts. This is all sufficient in light cases, but at times the progress of the disease is so rapid, and the sufferings of the patient so great as to demand a radicul cure. According to our author, the best method of effecting this, is that proposed by M. Breschet. This consists in isolating the varicose vessels and making pressure upon them by means of a forceps with flattened blades which are worked by a screw. The pressure being sufficiently strong to destroy the life of the scrotum and vein, at the points to which it is applied, in a gradual manner, and thus cut off the circulation in the larger trunks. In most cases the instrument is removed on the 7th or 8th day, With this forceps, M. Breschet is said to have operated upon no less than 120 cases, a number of which are minutely detailed in the essay before us, without ever having once seen serious consequences result from it. The only instance we are aware of in which the forceps of M. Breschet was used in this city failed, so much pain being caused by it, that the patient insisted upon the removal of the instrument. Of the other modern means, however, which have been proposed for the radical cure of this affection, we have had some experience, and in no instance have unpleasant symptoms

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arisen from them. In our opinion, the best of the means proposed is that of M. Davat, a method which has already been made known to the readers of this Journal. G. W. N.

ART. XVIII. *De l'Action des Alimens sur l'Economie Animale.* Par M. EDWARDS, Membre de l'Institut. Paris, 1838.
On the Action of Food on the Animal Economy. By M. EDWARDS.

THE human body is continually receiving, in order to repair its incessant losses, supplies of air, water, and solid aliment. The demand for the first being most urgent, the supply is the most constant; that for the second is scarce less so; and accordingly we find that water is furnished by nature in the most boundless profusion. Lastly, the demand for food, less clamorous, and made at longer intervals, lends itself more readily than either of the two others to artificial and conventional arrangements for its supply.

The correspondence between the waste and supply of the system, however, though constant, is not exact. In infancy, when an expansion and augmentation of all the parts is to be provided for, it is obvious that the supply must exceed the expenditure. A similar proportion holds in cases of recovery from disease. With the advance of age this difference diminishes, and when the growth is attained, the system requires no more than to replace the alimentary matter of which secretion and other vital processes have deprived it. As old age approaches the proportion is reversed; the body becomes emaciated, and the supply demanded being thus less than the amount parted with, is furnished by a proportionally less amount.

With both men and animals, the sense of the necessity of supply is instinctive. When liquid is furnished in too small proportion, they feel thirst; when solids, hunger. The immediate cause of these sensations is not perfectly known to us; although in regard to hunger it has been partially explained. The severest suffering is that from thirst; a circumstance which M. Edwards attempts to explain, not very successfully, it seems to us, by the stimulant character it imparts to the blood. When thirst exists to a great degree of intensity, it may bring on delirium or madness, which happens in men, and more frequently in dogs.

The privation of solid food produces a strong tendency to debility. In this case, too, the proportion of the constituents of the blood is altered, and the red globules exist in diminished quantity. Hence the human blood is made to approach in character that of the cold blooded animals, whereas in the reverse state, it bears an equal resemblance to that of birds.

The sensations of hunger and thirst, though dependent on the withdrawal of supplies, do not require for their relief, that the system should be renourished. It is sufficient that the liquid reach the stomach, that the solid have been swallowed, and the unpleasant sensation, except we think M. E. should have added in some anomalous cases of extreme exhaustion, vanishes. In proof that thirst may be in some cases a local affection, M. E. adduces the following case. A man is ascending a mountain in a dry atmosphere; he finds himself tormented with thirst, which drinking will scarcely assuage. Suddenly a vapour arises and he is relieved. We cannot see clearly, however, how the conclusion of M. E. results from his premises. The dry air is carrying off the fluid from every part of the surface, and the cause of the thirst acting generally, the effect must be equally general. The affection in question may differ from ordinary thirst by some peculiar impression made on the nervous system, but we see no sufficient reason to suppose that it is a mere local dryness of the throat and fauces.

The warning furnished by nature of the necessity of taking food, though generally, is not always precisely hunger. Some never feel this sensation in any proper sense. In such cases, however, some other instinctive sensation is substituted, by which the maintenance of the system is secured. We appre-

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hend that M. E. might have pursued this branch of his subject, the connection between our propensities and certain ends to be answered in the economy, with advantage. Are the bowels costive? The food which presents itself as most grateful to the appetite, is precisely that which is calculated to have the effect of removing the accumulation. Is there diarrhœa? The articles, a free indulgence in which has produced the affection, cease to please; and a dry absorbent diet becomes the most grateful. Is there excess of acid? Those substances which from their complicated character are most disposed to ferment, the vegetables and pastry for example, become distasteful, and animal food plainly prepared is now the favoured aliment. We will not say that these indications are always so evident; but in occasional aberrations from a generally healthy state they are often a sufficient warning and guide. The indication, sometimes furnished by our sensations, of the necessity of depletion before an attack of apoplexy, though foreign to the subject of digestion, may be mentioned as another illustration of the same general law.

Food, in order to nourish the body, must fulfil two conditions. It must furnish to the system the materials necessary to its support; and 2dly, it must suit the nervous system. The last indication, with all deference to M. Edwards, is, we apprehend, rather vague. We like better the two conditions of some German physiologists, who hold, first, that food should have the necessary nutritive qualities; and 2dly, that it should be sufficiently stimulating to the stomach, to enable this organ to act upon it. It would require a strong effort of resolution even for a hungry man to dine on bread or boiled rice, and a gourmand would subsist on the hopes of doing better for some time at least, before making a meal on the honest Hibernian's favourite vegetable.

M. Edwards notices the antipathy felt by certain individuals against particular articles of diet which, to the generality of mankind, are agreeable and wholesome. It is worth remarking that this aversion is not always one of taste, for sometimes the article is agreeable to the palate; it is a warning, of the same kind as those already alluded to, of the deleterious qualities of the articles in question. These aversions are not always congenital. They occur in many instances from excessive indulgence. We have known an individual, who, having been once surfeited by lobster, could never be persuaded again to touch this shellfish. The same effect has sometimes been most fortunately produced by over-indulgence in spirituous liquor. Sometimes, however, these repugnances are not only congenital but hereditary.

There are other qualities which, though of less moment, are not without their importance. The food must be of agreeable odour, or no persuasion can induce the man of delicate stomach to taste it. It is true that habit will reconcile us to many things which at the outset are most repulsive. To most children the odour of wine is unpleasant, and to the untaught nostril the viand kept till its powers of adhesion will no longer maintain it on its hook is somewhat repulsive. But perseverance and philosophy will do much in time to overcome these prejudices.

The purpose of digestion is the conversion of food into the substance of the body. This process is called assimilation. Now there are two classes of compounds in nature which lend themselves to this process. The first are called ternary, the second, quarternary compounds. The first consist of oxygen, hydrogen, and carbon; the second, of these elements with the addition of azote. It is found, in comparing animal with vegetable substances, that the latter are, in most instances, ternary, and the former, quarternary combinations. The former rule is not, indeed, without its exceptions. But besides the elements just mentioned, many substances, both animal and vegetable, contain mineral ingredients, and these are principally the following; chlorine, phosphorus, soda, lime, sulphur, potass, silex, iron, and manganese; all these have their use in aiding the digestive process; not by the nutriment they contribute directly to the system, but by the stimulus which in their various combinations they are capable of imparting to the central organ of digestion.

The substances then which contribute to the great work of assimilation may be divided into two classes. The first, as containing mineral ingredients, may be termed mineralized, the others may be named organic substances. To begin

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with the first. The mineral elements which enter into the composition of these are, as above stated, the following: 1. chlorine; 2. soda; 3. phosphorus; 4. lime; 5. sulphur; 6. potass; 7. iron; 8. silex; 9. manganese.

1. Chlorine is found both in the solid and fluid portions of the body. In its simple state it is said to be exhaled by the stomach during the process of digestion. But it is in its combination with hydrogen and soda, or as common salt, that this substance contributes to the assimilative process. It does this by arousing the dormant secretory organs, and inducing them to pour forth their peculiar fluids. It thus augments the faculty of producing these juices; it then furnishes itself as an ingredient in their composition; and lastly, it supplies muriatic acid, one of the principal agents in gastric digestion.

In its combination with soda as common salt, muriatic acid plays a most important part in the function of digestion. Fortunately there is no substance which nature has furnished in greater abundance. The sea presents an inexhaustible supply. It is found collected in springs and lakes, and even mines of unknown extent and depth have been worked from time immemorial for the sake of this precious condiment. Animal substances contain more salt than vegetable, with the exception of marine plants among the latter; and animals who live on grass often roam over long tracts of country, that they may gratify their longing for this necessary stimulant.

2. That soda, even in its uncombined state is essential to digestion, has been proved by direct experiment. The action of its compounds is more familiar. It is to the carbonate and bicarbonate of soda, that the celebrated waters of Vichy owe much of their efficacy in affections of the liver. Free soda has been found in the bile and likewise in the blood.

3. Phosphorus is an important principle in the animal economy. In the state of phosphoric acid and its salts, it is found in all the solids and fluids. Phosphoric acid is a constituent principle in the tissue of the nervous system and the brain, and the phosphate of lime, entering into the composition of the bones, imparts to them their solidity and power of resistance to external force.

4. The importance of lime as a constituent in the osseous system has been already alluded to in speaking of the acids with which it combines. The phosphate and carbonate of lime, combined with gelatine, constitute in fact the hard parts of all animals, but in different proportions; the phosphate predominates in the bones of the vertebrated, the carbonate in those of the invertebrated animals.

5. Sulphur enters into the sulphate of potass, and is an ordinary component of the living body.

6. Potass is found in all the solids and fluids, but in minute proportion.

7. Iron is the colouring principle of the blood.

8. Silex is found in the bones, to which it no doubt imparts solidity and strength.

M. E. now comes to the consideration of the organic elements, oxygen, hydrogen, carbon, and azote. These are furnished both by the food and by the atmosphere. In the atmosphere, the oxygen and azote are free; the hydrogen and carbon exist in a state of combination; the first in the form of vapour, the other in that of carbonic acid. Now, if the atmosphere could furnish, in a proper form, all the oxygen, hydrogen, carbon, and azote of the body, we might maintain ourselves on the one hand by respiration, on the other by taking for nourishment those constituent principles of the body, which are not found in the air. But substances containing these elements only, are confined exclusively to the mineral kingdom, and of course, they could neither be assimilated nor even digested.

Can any one of the constituent principles found in the air be wanting in an article of food, and yet the article in question be capable of supporting life?

1. Oxygen is absolutely indispensable as a constituent in articles of nutrition. In fact, there is no edible substance in which it is not present. It is remarkable that the most virulent poison in nature, prussic acid, contains not a particle of oxygen.

2, 3. Hydrogen and carbon both enter into all articles of food, and the latter into all drinks except water.

4. As respects azote, we find it less indispensable; for among the articles of

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food employed by man, not a few, as above observed, are ternary compounds. But these are not furnished by nature. They are the product of art, and as such were unknown to man, till the progress of art demanded corresponding improvements in that science which has for its object the gratification of the palate.

To satisfy himself of the necessity of azote to the support of animal life, Magendie took a small adult dog, and put him on the use of sugar and distilled water. The seven or eight first days he continued lively and ate with avidity; the second week he began to fail, the appetite remaining good. The alvine excretions were small; the urinary, copious. The emaciation increased the third week with loss of strength. At this period, ulceration showed itself in the middle of the transparent cornea of one eye, then of the other; this increased till the coats of the eye were perforated, and the humour escaped. The same experiment was made with gum and olive oil. The result was similar, except that ulceration did not ensue.

Among the peculiar effects of a diet without azote, is the change which takes place in the character of the bile. It is found to contain a portion of picromel, the peculiar ingredient of oxbile, and in general of that of graminiverous animals. The urine presents all the characters of that of the herbivora, being sensibly alkaline instead of acid, and the excretions contain very little azote, compared with the usual proportion found in the egesta.

It is noticed by our author, that wheat-bread, which consists of fecula and gluten, is not sufficient of itself to maintain life. This fact he does not attempt to explain, but thinks that bran bread may furnish a permanent diet.

Magendie found that dogs fed with eggs were imperfectly nourished. This shows that pure albumen cannot supply the wants of the carnivorous animal. Swine have been fed with blood and died; hence fibrine alone cannot furnish a sufficient nourishment. Again; dogs have been fed with bread and pure gelatine; they died; hence gelatine is incapable of sustaining animal life. The reason is obvious. The mineral principles which have been mentioned as necessary stimuli to the secretions of the stomach, are not to be found in these substances.

Heat, observes M. Edwards, increases the nutritive power of many substances. Thus, many articles of food which are imperfectly digested in winter, become more amenable to the discipline of the stomach in spring, and in summer are readily assimilated.

The following propositions, which we give in full, terminate our author's speculations on this interesting subject.

1. We must carefully distinguish food from diet, which latter designates the totality of the nutritive articles that we habitually use; for it is evidently not necessary that an article of food should possess in itself all the essential qualities for maintaining life; but it is indispensable that all these qualities should be found united in the diet.

2. The diet should be so varied as to furnish all the constituent principles of the animal body in the quantity, proportion, and combination proper to sustain it; hence a variety of food is usually indispensable.

3. These constituent principles must be in such physical and chemical condition as duly to excite the nervous system, and to favour the action of digestion and assimilation.

4. Articles of food, as offered us by nature, often want some of the conditions necessary to render them appropriate for diet. This defect must be supplied by cookery, *one of the happiest inspirations of man.* E. G. D.

Art. XIX. *Urinary Diseases and their Treatment.* By Robert Willis, M. D., Physician to the Royal Infirmary for Children, &c. London, 1838, 8vo., pp. 408.

From no class of diseases is more suffering experienced than from those affecting the urinary apparatus. Of extreme frequency, none, perhaps, are more

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difficult of treatment, and yet none do we find less generally understood by the mass of practitioners. Within the past few years great accessions to our previous knowledge have been made in regard to these affections, by those engaged in their particular study. Their pathology has become better known and chemistry has supplied us with simple processes whereby the changes in the quality of the secretions from the urinary organs may be easily detected, at the same time that it has made known to us the proper means of correcting them. The results obtained, however, have remained scattered, and were without much avail to the physician placed beyond the reach of the more recent works of reference, and Dr. Willis merits our thanks for having given to us a well digested monograph on the functional derangements of these organs.

The work is divided into two parts. In the first "functional derangements of the kidneys and their immediate consequences" are treated of. In this is made known the symptoms of the different affections, their causes, prognosis. &c., as well as the proper methods of testing the different varieties of morbid urine and modes of treatment best adapted to each. The second part treats of "functional derangements of the organs which excrete the urine;" in which are given, successively, chapters on impediments to the discharge of urine, inability to retain the urine, irritability, spasm, and catarrh of the bladder. As being intimately connected with disordered states of the renal secretion, we have introduced into the first part of the work a chapter on stone in the kidney and bladder, in which, after speaking of the medical treatment of stone, the author goes on to treat of its solution by means of alkalies, injections into the bladder and galvanism. Dr. Willis ranges himself among those "who hope, who even of their own knowledge conclude, that the day will come when by the aids that science affords, urinary calculi will be familiarly destroyed in their seat," and details cases of cures produced by the use of the mineral springs of Vichy, or other alkaline waters, in the hands of MM. Robiquet and Petit in France, as well as by means of injections into the bladder by Sir B. Brodie in London. None of the instances cited by him are sufficient to carry conviction of the reality of the cures to our mind. That the sufferings of some patients affected with stone may be greatly mitigated by the use of alkaline remedies, or even in a few cases absolutely removed by them, none can doubt, but the idea that the day will ever arrive when calculi, generally, will be destroyed in the bladder by chemical agents, may, as it has been by Marcet, Brande, and Civiàle, well be scouted at. In this same chapter, in which appear several remarks that we would rather had been omitted, we find lithotrity and lithotripsy spoken of in a manner which astonished us, as it will no doubt our readers. We can only account for the author's statements in regard to these great improvements in surgery, by remembering that he himself is no surgeon, that his work is given as a strictly medical work and that consequently any expressions of opinion which have escaped him on surgical points, have probably been received by him without minute examination of the proofs upon which they are based. "The latter operation, (lithotrity,) from which so much was anticipated at first, and which was so flattering to the timid, would not seem hitherto to have answered expectations. Whether it be that cases have been too indiscriminately submitted to treatment by its means, that the operation has been held applicable in too wide a range of circumstances, that its dangers are actually greater than they appear to be, or that it has hitherto been too much in the hands of men who were not physiologists and pathologists besides being handicraftsmen, it is quite certain that lithotrity or lithotripsy has, on the whole, proved even more fatal on the average than the old operation of lithotomy used to do." p. 345. And again, "lithotrity cannot boast of any thing even like this very moderate general success," (a mortality of one in eight.) "There have as yet been no Frère Jacques, and Cheseldens, and Martineaus, and Listons, and Dudleys among lithotritists. The deaths in the hands of the leading lithotritist of Europe, M. Civiale, are reported to be *at least* in the proportion of one in four. In all hands *the mortality from lithotrity has been that of pestilence, something like one in two.*" p. 347.

Barring this chapter on vesical calculi, we have derived both pleasure and profit from an examination of the work of Dr. Willis, and heartily recommend it to the attention of our readers as containing a great deal of valuable, well

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arranged and, withal, practical information. "The entire subject," says the author in his preface, "I have handled less as a chemist and experimenter, than as a pathologist and practical physician; but I have still supplied the necessary instructions for testing each variety of morbid urine, and of each morbid product occurring in its constitution, the knowledge necessary for this purpose being among the number of accomplishments indispensable to whosoever would treat urinary diseases with discrimination and success." G. W. N.

ART. XX. *Outlines of General Pathology.* By GEORGE FRECKLETON, M. D., Cantab. Fellow of the Royal College of Physicians. London, 1838, 12mo., pp, 267.

As a very concise and hasty outline of *a portion* of the science of general pathology, the work of Dr. Freckleton will be found a useful guide to the student and young practitioner. It is very far, however, from presenting a complete outline of general pathology. The first seventy-five pages are taken up with observations on disease, its seat, causes, division, and mode of attack; while the rest of the volume, with the exception of the last twenty-seven pages, in which are considered the progress, duration, course, and termination of diseases, their diagnosis, prognosis, and treatment, is devoted to the symptoms of disease, as observed at the bed-side of the sick. Hence the work might have been, with greater propriety, entitled "Outlines of Symptomatology," than "Outlines of General Pathology." The condition of the several tissues and organs in disease and the symptoms with which the several changes from their normal state are usually associated are passed over as though they formed no part of general pathology. In treating of the symptoms, the observations of the author refer more especially to their connection with the groups of morbid phenomena, constituting the diseases of the nosologists, than as the indications of the morbid actions and changes occurring in one or more of the tissues and organs.

The subjects embraced in the volume before us are, in general, treated of with sufficient accuracy. From the author's views, however, of functional disease as existing entirely independent of any change in the organs, we dissent, although we grant that in many cases the change in the condition of the organs giving rise to disturbance of their functions is inappreciable to our senses, and that what the English pathologists generally understand by the term "organic change," is, in the majority of cases, rather the effect than the cause of disease. But we cannot understand how the functions of an organ can be in any degree disturbed and the organ itself be unchanged from its normal condition.

The remarks of the author upon contagion are unsatisfactory; some of the statements adduced by him as facts are of doubtful authority, and his reasoning is altogether inconclusive. His observations, however, upon the leading symptoms of disease, though concise, are, in general, correct; hence as an outline of semeiology we recommend the work of Dr. Freckleton to the notice of our readers.

D. F. C.

ART. XXI. *Introductory Address, delivered at the opening of the session of the Medical College of Georgia, on the second Monday of November,* 1838. By JOSEPH A. EVE, M. D., Professor of Therapeutics and Materia Medica. Published by the class. Augusta, 1838, pp. 24, 8vo.

Medical Education. An Address delivered before the Medical Society of Tennessee, at its annual meeting, at Nashville, on the 7th May, 1838. By LUNSFORD P. YANDELL, M. D. Published at the request of the Society, pp. 20. 8vo.

THESE are appropriate and excellent discourses: rather ambitious, in parts, in their style—but in the main, free from this common fault of similar productions in this country.

Professor Eve's address is devoted to the inculcation of the importance of ap-

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plying the inductive philosophy to the study and cultivation of medicine. The following extract, presents sound views, neatly expressed, and may be quoted as a specimen of the author's best manner.

"The introduction of the inductive philosophy into the study of medicine has by degrees led medical philosophers to consider the subjects of their investigation, in the light of physical sciences, capable of being studied as such: and the application of the principles of physical science to these subjects has proved, most satisfactorily, that this is the only correct and successful mode of studying them. It has, by suggesting the value of the employment of the senses in physical research, led to their application to the investigation of disease; and the consequence has been most happy. It has clearly demonstrated that a vast amount of the most exact and valuable knowledge, in pathology, lay concealed from physicians, until brought to light by this method of investigation.

"The employment of the sense of hearing, until very recently, was restricted almost entirely to the patient's own account of his sufferings, or the still more fallacious narrations of friends and attendants; but since the days of Laennec, this sense, by means of auscultation, mediate and immediate, and percussion, is employed in exploring the physical condition of organs, in the hidden cavities, farthest removed from observation, and reveals information which enables us to decide the diagnosis of many diseases, with an accuracy unattained and unhoped for before;—the certainty already arrived at, by the employment of the physical means of diagnosis, in thoracic diseases, cannot be regarded otherwise, than as one of the most splendid triumphs and valuable attainments of this inductive philosophy, teaching physicians to seize with avidity every thing connected with the subjects of their investigation, to improve every opportunity and try every method, in their power, of acquiring all the discoverable circumstances in every subject.

"The sense of touch, formerly employed for scarcely any other purpose than to ascertain the pulse and the temperature of the surface, is now much more extensively used, in the exploration of disease and examination of patients.

"Means have been invented, such as the speculum, &c., to extend the useful application of vision; and the other senses have all been brought into the same strict and beneficial requisition.

"The inductive philosophy is emphatically the philosophy of *facts;* but whilst it teaches their primary and paramount importance and declares that observation and experiment alone can furnish them, it instructs us that, to render *facts*, when thus obtained, valuable and available to science, they must be brought together, compared and classified for the deduction of *principles;* which method of deriving general principles from particular facts, generalization, is one of the highest and noblest exercises of the human intellect, and the talent for it most characteristic of genius. Bichat possessed this faculty in an eminent degree; hence his conclusions are so exact, so beautifully true to nature, that they must ever stand as irrefutable axioms in medical science, and his doctrine of the tissues, deduced from his observations and experiments, is justly regarded as a revelation in medicine. But great caution is necessary in the exercise of this talent—for equal evil has resulted from the error of generalizing, as of particularizing too much—errors into which our profession have too frequently fallen.

"Whilst in accordance with the dictates of this philosophy, I would endeavour to impress upon your minds the futility of theories not based upon facts, and the necessity of regarding the truths of nature as the foundation of knowledge, I would, with equal solicitude and earnestness, warn you against the danger of false facts and the fallacy of experience, as lamentable in the present day, as when first declared by the venerable sage of Cos.

"Medicine has always abounded in false facts, which Cullen has correctly said are more numerous than false theories. False facts, or errors in experience, result from superficial, careless, or partial observation and unfair experiment: men are wont too often to see every thing through the distorting medium of prejudice, and to admit nothing that contradicts their preconceived notions, or proudly cherished opinions: many err from want of opportunity, or disposi-

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tion, to compare their own experience with that of others: many errors have arisen from mistaking the relation of cause and effect: there is no more frequent mistake than that of taking simple antecedence for cause: when one event follows another, a careless observer is almost sure to regard them in the relation of effect and cause, although there may not have been the slightest connection between them; hence the necessity of the most attentive and candid observation, and the greatest care and caution in our experiments. From the want of due attention, cause is often mistaken for effect and the latter for the former—from the same defect, partial and erroneous conclusions are adopted;—all the causes that co-operate in the production of a result are not carefully scanned;—the succession or concatenated series of causes that conduce to the same end is seldom traced with sufficient attention and labour: What more cogent and conclusive evidence can be required to prove the fallaciousness of experience, than the constant reference that is made to it, as an infallible proof of the success of the most opposite and incongruous modes of practice? To prevent error and obviate danger, the most rigid principles of a sound and discriminating philosophy are continually required."

Dr. Yandell, gives a very brief retrospect of the history of medicine, and concludes with the following remarks:

"The first generation of physicians in Tennessee has passed away; and we stand here their successors and representatives. They spent their days in the discharge of labours 'huge and hard'—labours which demanded great bodily strength, industry and courage—exposed to cold in their long, lonely rides—compelled to ford dangerous streams—pursuing their way along blind uncertain paths—encountering hardships and privations to which these luxurious days afford no parallel. Amid such lives of toil, there could be but little leisure for study. Few books were reprinted in America, and few could be commanded. Those men had small advantages of professional intercourse. Schools of medicine were remote, and the expense of visiting them beyond the ability of most practitioners—and above all, they were without the advantages of the periodical press. These difficulties have passed away with the generation of men who lived in the midst of them. And with all the augmented means and facilities which we enjoy—with Macadamised roads, and the power of steam to hasten our travel—pursuing our professions in crowded, cultivated cities, or in thickly settled neighbourhoods, and with increased leisure thus for study—brought into contact with all parts of the country, and light from the farthest east flying to the remotest west with more than the speed of the revolving seasons—the discoveries at Paris or Vienna transmitted to Philadelphia, and from Philadelphia to Louisville or St. Louis, as if by telegraphic agency—with these enlarged efficiencies, shall we be accounted to have discharged the whole amount of our duty to our profession, if we pursue them with no more than the ardour and success of our fore-fathers? Nay! with the multiplication of means, has come a heavier weight of responsibility. We are invoked by the laborious example of our predecessors—by the clamorous wants and imperfections of the Healing art—by the complicated sufferings of our fellow-men—by the efforts of the profession in other lands—by our pride of State, and pride of profession, to transmit the science of medicine to our successors enriched by our labours."

ART. XXII. *Di una Strana Mallattia Nervosa guarita con L'agopuntura.* Memoria letta all'ateno di Venezia dal Socio ordinario GIACINTO DR. NAMIAS. 4to. 12 pp. Padova 1837.

Description of a singular case of nervous disease cured by acupuncturation. Read to the Athenæum of Venice, by DR. GIACINTO NAMIAS.

THE disease described in the pamphlet before us, occurred in a young girl of a fine form and good complexion, and endowed with great sensibility. Her menses had appeared at the usual age, and subsequently recurred at regular periods, and she had not experienced any disease with the exception of some

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slight and transitory disturbance of the nervous system, until the year 1834, when she suffered from an anginose affection followed by aphonia and violent cough evidently of a nervous character. From these symptoms she appears to have perfectly recovered; but in the commencement of the subsequent year, was again attacked, and on the cessation of the anginose symptoms there remained a very peculiar cough, consisting of a series of noisy expirations similar to the angry barking of a dog—which could be heard at a considerable distance. The accession of coughing continued with great violence and the utmost agitation of the whole frame from two to eight minutes, and was repeated at short but irregular intervals. Although the patient was greatly exhausted after these accessions yet the digestive and nutritive functions, the secretions and excretions, the pulse, respiration and sleep appeared to be in no degree disturbed.

The attacks of coughing were preceded generally by a sense of uneasiness at the præcordia, which sensation was also sometimes experienced in the intervals of the cough. The accessions were invariably attended by an almost complete extinction of the voice. The patient was able to articulate freely but in so low a tone as to render it necessary, in order to hear her, to approach the ear very near to her mouth. Although in ordinary conversation the tone of the voice was thus deficient yet the patient could sing with clearness and declaim with a distinct utterance; thus she was able, as it were, by an extraordinary effort, to surmount the obstacle which prevented ordinarily the formation of the voice.

Although the accessions of convulsive cough and aphonia often occurred without any evident exciting cause, they were produced also by the slightest excitement of the mind, some particular odour, and even by some particular article of diet. A variety of remedies were resorted to, without any or with only temporary benefit—as hyoscyamus, oxide of zinc, valerian, belladonna, aqua laurocerasus, hydrocyanic acid, emetics, purgatives, diluents, opiates, assafœtida, the tepid bath, leeches and blisters, &c.; the particular manner or length of time these remedies were administered is not, however, very clearly stated. Finally a resort was had to acupuncturation. Twelve needles were at first introduced on the anterior and superior parts of the neck about the organs of voice; others were introduced at the same time at the scrobiculus cordis, subsequently, after the lapse of some days, twelve to fourteen needles were introduced on each side the spinous processes of the last cervical and first dorsal vertebræ. Under this plan of treatment the patient rapidly recovered and was, we are led to infer, at the period when the description of her case was published, entirely free from disease.

D. F. C.

Art. XXIII. *Elements of Medical Jurisprudence* By Theodoric Romeyn Beck, M. D. Professor of Materia Medica, and Medical Jurisprudence, in the College of Physicians and Surgeons of the Western District of New York, &c. &c., and John B. Beck, Professor of Materia Medica and Medical Jurisprudence, in the College of Physicians and Surgeons, New York, &c. &c. Sixth edition, 2 vols. 8vo. pp. 670 and 743. Philadelphia: Thomas, Cowperthwait & Co. 1838.

We have already (vol. XVII. p. 460) expressed the very favourable opinion we entertain of this work and we take great pleasure in reiterating that sentiment, a judgment which the public have fully confirmed as is evinced by the short period that has elapsed between the appearance of the preceding and present edition.

This last has been carefully revised and amended and contains many important additions, particularly in the part relating to persons found dead; and it may be regarded as exhibiting a complete summary of the existing state of the science of Legal Medicine.

This work is indicative not only of great research and industry on the part of the authors but also of the rarer merit of judgment in the selection of materials and skill in digesting them into a harmonious whole.

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SUMMARY

OF THE

IMPROVEMENTS AND DISCOVERIES IN THE MEDICAL SCIENCES.

GENERAL ANATOMY AND PHYSIOLOGY.

1. *Structure of the Retina.*—*Müllers Jahresbericht* for 1837 contains an interesting account of the recent investigations of some German Anatomists, relative to the structure of the retina. The details we may give hereafter—the results, which we copy from the *London Med. Gaz.*, July 7, 1838, are all we have space for at present.

"It may be considered as proved by these investigations, that the retina, which has very generally been regarded as merely a single expansion, or melting out of the optic nerve, is formed of several distinct layers. That, immediately subjacent to the membrana Jacobi, there is a pulpy soft matter, which hardens in alcohol, &c., and may then be removed in small scales; that next internally to this there is a dense firm membrane, which has a granular aspect on both surfaces, and supports the nervous fasciculi and filaments of the divided optic nerve, which lie beneath it, radiating from the nerve as a centre, and covering the whole vitreous humour as if by an equable expansion; and that immediately beneath the radiating filaments of the nerve, the vessels are distributed in a venous and an arterial network, forming a single vascular layer. Through the meshes of these networks, each ultimate fibril, having turned inwards, passes, receiving from them a simple sheath, or having a more or less perfect papilla formed at its base. Thus curved, they project towards the anterior part of the eye, being arranged so densely, that when viewed in front they present a perfectly smooth and even surface, of the same kind as, but much more fine and delicate than, that of velvet. Thus the retina receives impressions as other nerves are supposed to do, on the extremities of ultimate nervous fibrils, and presents that most admirable opportunity of observing their mode of termination, which it is probable that future investigations will prove to be the same in all parts of the body."

2. *On the Functions of the Rete Mucosum and Pigmentum Nigrum in the Negro.*—Mr. R. M. Glover read a paper on this subject to the Medical Section of the British Association at their last meeting. The paper commenced by stating, that the degree of developement of the rete mucosum and its pigment determined the power of resisting the excessive heat of the sun in tropical climates, as evinced by the Negro, (the type, in this respect, of the dark races,) the European, and the Albino. The *modus operandi* must be discovered by an attention to both the physical and vital properties of this peculiar organization. The doctrine at present taught on the subject is, that the black skin absorbs more heat, but that the cutis vera of the negro is not so liable to inflammation from a high temperature, as that of a European from a lower temperature; and, as the radiation of caloric from black must be greater than from white skins, the p.s-

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sesser of the former must cool more readily, and enjoy greater alternations of heat and cold. The former part of this doctrine is founded on the experiments and deductions of Sir Everard Home, as detailed in his paper in the Philosophical Transactions A number of experiments detailed in the paper on the vesicatory powers of differently coloured substances, under the concentrated rays of the sun, contradicted the deductions of Sir E. Home; and hence arose the necessity of looking to the vital properties of the skin of the negro, and the mode in which it is likely to be affected by the radiating and absorbing power of the pigment with which he is provided. Blumenbach and Winterbottom state, that the negro perspires more readily and freely than the European; and Davy says, "In the inhabitants of the tropics, the exhalent arteries of the skin seem unusually expanded, and the whole apparatus peculiar to this secretion unusually developed; and I believe that the blood itself is less viscid, more fluid, and flows more readily through the vessels, so as to promote prespiration, and by that means contributing to the cooling of the surface. And being cooled itself, it contributes again, when it flows back upon the heart, to the reduction of the temperature of the internal parts." Were the inhabitant of the tropics not possessed of this peculiar organization, his system could not respond to the stimulus of heat, by a determination of fluid towards the surface. Doubtless, the excessive absorption of heat by his skin, is useful in promoting this effect; but in the system qualified to respond to the stimulus of heat, and not in the organization of the skin alone, must an explanation be sought of the capability of the negro to withstand the heat of tropical regions.—*Athenæum.*

3. *Experimental Investigation of the Functions of the eight pair of Nerves.*—Dr. John Reid communicated to the Medical Section of the British Association the principal results which he has obtained in prosecuting this inquiry since the last meeting of the association. Dr. Reid chiefly confined himself to the Pulmonary and Gastric branches of the Nervus Vagus. In a great number of experiments upon dogs, in which the nervi vagi and recurrents were divided, Dr. Reid satisfied himself that, when a sufficient quantity of air reached the lungs, the respirations were at first performed with ease. The only immediate and constant effect observed, was a great diminution in the number of the respiratory movements, which at the same time became slower and more heaving. When the number of respirations were from sixteen to twenty in a minute, they, in general, instantly fell to from six to eight. In one animal, in which they were from twenty-four to twenty-eight, they immediately fell to fourteen; and, in another animal, in which they were twenty-four, they fell to eight. At a longer or shorter period after section of the nerves, the inspirations became more prolonged and heaving, while the expirations continued to be comparatively short and rapid, and attended by a sound caused by the sudden expulsion of the air. After a time, the inspirations become more heaving and prolonged, the blood is less perfectly arterialized in the lungs, and the arteries circulate blood gradually approaching the venous character; the animal becomes dull and stupid, and dies asphyxiated. In tracing the morbid changes upon the lungs, which follow section of the vagi, Dr. Reid has satisfied himself, from the dissection of animals killed at various periods after section of the vagi, that the bloodvessels of the lungs become gradually loaded with blood, and that this, in a few cases, is the only change which can be observed after death. More frequently, however, this congestion of the lungs gives rise to effusion of serum, which in the bronchial tubes, is rendered frothy by the passage of air through it; to condensation of portions of the lung without any apparent effusion of lymph; and more rarely to true pneumonia. The respiratory murmur is little, if at all, changed for a short time, but it afterwards becomes bronchial; and when the effusion of serum takes place, the true *râle crepitant* may be heard. It appears, however, that these morbid changes in the lungs do not necessarily take place after section of both vagi and recurrents. In a dog, which was killed in the presence of Dr. Alison, twelve days after section of the vagi and recurrents, and which had apparently recovered from the effects of the operation, the lungs were found perfectly healthy, though the cut ends of both vagi were rather more than one

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inch distant from each other. Dr. Reid believes that the diminished frequency of the respiratory movements is sufficient to explain all the morbid changes in the lungs, which result from section of the nervi vagi. He related several experiments to prove that the respiratory movements are not arrested by division of the vagi and recurrents after removal of the cerebrum and cerebellum. In these experiments, it was, however, observed, that though section of the vagi did not arrest the respiratory muscular movements, they were much diminished in frequency. While these experiments illustrate the great importance of the par vagum as exciters of respiration, they also prove that there are other nerves which can transmit those impressions to the medulla oblongata, which excite the respiratory movements; and Dr. Reid adduced some facts to show, that one of the most important of these was the larger root of the fifth pair distributed upon the face. Dr. Reid then related four experiments, which he considered to afford satisfactory evidences of the continuance of digestion after section of both vagi, with loss of substance. In three of these, the lacteals and thoracic duct were found full of chyle. From these experiments, he concluded, that, though by division of the vagi a deleterious influence is propagated downward to the stomach, disturbing the functions of the digestive organs; yet, if the animal live long enough, this goes off, and digestion proceeds as before. He related some experiments to prove, that alcohol, opium, and prussic acid exert their deleterious effects as rapidly when injected into the stomach after division of the vagi, as when these nerves are left entire. He then detailed the result of five comparative experiments upon the effects of fatal doses of arsenic upon the watery and mucous secretions from the inner surface of the stomach and intestines. These results were completely at variance wih the statement of Sir B. Brodie, that section of the vagi arrests the usual mucous and watery secretions of the stomach and intestines observed after poisoning with arsenic. He stated, that he had of late carefully watched the effects of division of the sympathetic nerve on the eye, and that he had satisfied himself that the contracted state of the pupil, and the partially-closed eyelids, which accompany the inflammation of the conjunctiva, consequent upon section of the sympathetic, take place previously to the inflammation of the conjunctiva, and are independent of it.

Prof. Owen requested to know, if albumen were discovered in the thoracic duct after the division of the vagi nerves. Dr. Reid replied, that no chemical analysis was made of the contents, but true digestion was inferred by him from the return of health and activity to the animal operated on.—Dr. Golding Bird pressed the same objection as Professor Owen, and wished that an experiment on the subject should be followed up by such a chemical investigation as would be decisive.—*Ibid.*

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4. *On the Origin and Subsequent Developement of the Human Teeth.*—Dr. Goodsir has observed dentition commence by the formation of what he denominates the primitive dental groove, on the floor of which the rudiments of the pulps of the milk teeth appear as globular or conical papillæ; septa afterwards pass from the outer to the inner side of the groove, between the papillæ, and thus each of the latter becomes situated in an open mouthed follicle, which is the primitive condition of the future sac. After the formation of the milk follicles, the lips of the groove still remain prominent; and when in this condition he denominates it the secondary groove. The rudiments of the ten anterior permanent teeth appear as little depressions in the secondary groove, internal to the mouths of the milk follicles. The papillæ of the milk teeth now begin to be moulded into the form of pulps, a change which is synchronous with the closure of the mouths of the follicles by two or more laminæ, which agree in number, shape, and position with the cutting edges and tubercles of the future teeth. The lips and walls of the secondary groove now adhere, except in the situations of the ten depressions for the permanent teeth, and for a small extent posteriorly on each side, where a portion of the primitive dental groove remains in its original condition. In this portion the papillæ and follicle of the first large molar tooth appear, and, after it closes over, the lips of the secondary groove above it adhere, but not the walls; so that there is in this situation a

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cavity which produces the sacs of the two posterior permanent molars. The first large grinder may, therefore, be considered in some measure a milk tooth. The author observes, that dentition begins, and is always in advance, in the upper jaw, except in the case of the incisive teeth, which, although they appear first, are later in coming to perfection. This he explains by the tardy development of the lateral elements of the intermaxillary system. The author divides dentition into three stages. The first is one with which anatomists have hitherto been unacquainted,—viz. the follicular. The second and third they are familiar with—the saccular and the eruptive. From his researches, he concludes that the human teeth originate from mucous membrane; that the permanent teeth have no connection with the deciduous set, and that the sac and pulps must be referred to the class of organs denominated bulbs. He anticipates the discovery of the follicular stage in the dentition of all animals, and if so, that it will explain the varying and complicated forms of the pulp and sacs.—*Ibid.*

5. *Experiments and Observations on the Cause of the Sounds of Respiration.*—Dr. Spittal, in a communication to the Medical Section of the British Association, has endeavoured to show, that the theory of Laennec, in regard to the cause of the respiratory sounds—viz. that all those known by the terms vesicular, bronchial, tracheal, as well as cavernous and amphoric respiratory murmurs, are caused by the friction of the air against the parietes of the air-cells, bronchial tubes, trachea, and of cavities of different dimensions, has never been proved; and that the few experiments which have been advanced in support of it, are far from establishing the conclusions which have been deduced from them; and that it is highly probable that, according to the theory of M. Beau,* these sounds either owe their existence to, or are in part produced or modified by, the transmission or reverberation of a sound which takes place in the superior respiratory passages, and which has been termed by M. Beau, the "guttural" respiratory sound. In support of the first theory, it was observed, that the best and almost the only experiment was that of Magendie, in which air was blown into the lungs by means of a pair of bellows, and in which sounds, resembling the respiratory murmur, were perceived, and from which M. Magendie drew the conclusion, that because air passed to and from the lungs during this experiment, as well as during respiration, therefore, the respiratory sounds are produced by the friction of the air against the parietes of the bronchial tubes and air-cells of the lungs. It was stated that the similarity between the sound produced by a pair of bellows, and the guttural sound was admitted by Laennec; and that it was also observed that a similar sound could be produced by blowing air through almost any tube; differing in tone and degree, according to the diameter or shape of the opening in the tube—the force with which the air is made to issue from it—or the nature of the materials of which it is composed. The experiments of M. Beau, in support of his particular theory, it was noticed, were open to objections, and did not seem to bear out very clearly the conclusions at which he arrives; which may perhaps account for the neglect his view of the subject has met with. For the purpose of obviating these, and showing in a more distinct manner the probable truth of this theory, to a certain extent at least, several experiments were devised, calculated to prove this in a less objectionable manner. In these experiments no stream of air was allowed to pass through those parts the subject of observation, which were only allowed to become, and remained distended, with air; while, at the same time, the sound produced by the issuing of the air from an air-condensing apparatus, or from the mouth,—and which very nearly resembled that of the bellows, which again resembles the guttural sound—was observed to have passed freely, in one experiment, nearly, if not quite, as loud in this as in another artery connected with it, and through which a current of air passed. In another experiment, in which the lungs of a lamb were used, sounds analogous to the tracheal, bronchial, and vesicular, respiratory murmurs were distinctly perceived, although no current of

* Archives Générales, Paris, 1834.

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air passed along the air tubes or cells; and in the case of a bladder, attached to one of the great bifurcations of the trachea, a sound louder than that in the bronchial tubes was perceived, when the former was contracted to about an inch and a half or two inches in diameter; feebler when larger; and assuming, as its size was increased, a gentle, shrill, ringing, amphoric character. In these different observations, no current of air passed along the parts the subject of examination, but was conveyed away in a manner which our space will not permit us to describe. These experiments were not advanced to prove that the guttural sound, or that which takes place in the superior respiratory passages, is the only source of the respiratory murmurs; but to show that in all probability it exerts a considerable influence, if not in producing, at least in modifying, the different respiratory sounds, known as the vesicular, bronchial, tracheal, cavernous, and amphoric respiratory murmurs, all of which have hitherto been explained according to the views of Laennec.—*Ibid.*

6. *Cases in which the ability to distinguish Colours was Defective.*—Dr. Elliotson laid before the Phrenological Society of London, at a recent meeting, an account of two gentlemen in whom the power of distinguishing colours was defective, and at the same time presented masks of them. He stated that Gall pointed out that some persons are incapable of distinguishing a marked difference between two colours.

Dr. Elliotson mentioned that the inability to distingush certain colours was very common, was frequently hereditary, and occurred much more frequently in males than in females. Dr. Nicholl, in the "Medico-Chirurgical Transactions," vol. vii, describes a boy who confounded green with red, and called light green and pink, blue. His maternal grandfather and one uncle had the same imperfection. This uncle was in the Navy, and having a blue uniform coat and waistcoat, purchased a pair of red breeches to match. Dr. Nicholl mentions a gentleman who could not distinguish green from red; grass in full verdure always appeared to him what others called red; and ripe fruit on the trees he could not distinguish from the leaves. A cucumber and a boiled lobster were the same colour in his sight, and a leek resembled a stick of sealing-wax. This person had a brother and a niece, the daughter of another brother, in a similar predicament (L. C., vol. ix.) A similar case is mentioned by Dr. Priestley, in the "Philosophical Transactions" for 1777, and the man had two brothers with the same defect. In the volume for 1778, a similar case is described, in which the gentleman's father, maternal uncle, one sister, and two of her sons, were similarly circumstanced. He mistook pink for pale blue, and full red for full green; all kinds of yellow and blue, except sky-blue, he could distinguish with great nicety. Mr. Combe mentions three brothers and a cousin who inherited the defect from the maternal grandfather, the intervening generation not having it. Professor Dugald Stewart could not perceive any difference in the colour of the scarlet fruit of the Siberian crab and that of its leaves. Sir D. Brewster examined a gentleman who saw only two colours in the spectrum, viz., yellow and blue; when the middle of the red space was absorbed by a blue glass, he saw the black space with what he called the yellow on each side. Dr. Dalton was unable to distinguish blue from pink by daylight, and in the solar spectrum the red was scarcely visible to him. Mr. Troughton had the same defect, and was capable of fully appreciating only blue and yellow colours, and when he names colours, the names of blue and yellow correspond to the more or less refrangible rays, all those which belong to the former exciting the sensation of blueness, and those which belong to the latter the sensation of yellowness, as I find in Sir David Brewster's "Treatise on Optics." This author mentions also a shoemaker at Allenby who was unable from his infancy to distinguish the cherries of a cherry-tree in so far as their colour was concerned. Two of his brothers always mistook orange for grass-green, and light-green for yellow. Hains himself could only distinguish black and white. A tailor at Plymouth regarded the solar spectrum as consisting of only yellow and light. We learn from these cases, said Dr. E., not only that the deficiency may be hereditary, and in all probability occurs most frequently in males, but that the

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defect relates most frequently to only one of these primitive colours, and that that one is the red. He then read an account drawn up by two young gentlemen of University College, London, who were deficient in their sense of colour. The first has the ordinary deficiency of insensibility to one colour only, and that colour is red. The other has the rare deficiency of being insensible to two of the primitive colours, so that every thing appears to him as of one colour, and it is not known to which two of the three primitive colours he is insensible.

Dr. Elliotson read the following account written by the gentleman deficient in the red ray:—"The only colours I can recognise with certainty are blue and yellow. The rainbow and prismatic spectrum appear to me to be composed of only two colours, which seem to become gradually intermixed in the centre, and to subside towards the margins. I have not ascertained whether I see the whole breadth of the spectrum, the other colour appearing as blue or yellow, or whether I do not perceive some of them at all. If two colours are placed close together with a well marked line of demarcation between them, I readily perceive that they are not similar, and I believe that it is in consequence of those of the rainbow and spectrum passing in some measure into each other, instead of terminating abruptly by a defined line, that I cannot observe the difference between them; for if I see the prismatic colours painted on paper their dissimilarity is quite evident, although I cannot say, excepting the blue and yellow, what colours they are. I perceive the slightest difference in shade, but in some instances two different colours, several of the shades of red and green, for example, appear to me to be only different shades of the same colour; and, on the other hand, what is only another shade, sometimes appears of a different colour. I have frequently observed that on adding water to tincture of cardamoms, which at first looks red, after the dilution has reached to a certain point the fluid appears to me to change suddenly to blue. I experience greater difficulty in distinguishing very light and very dark shades of colour, the former appearing colourless, the latter black. Transparent substances I distinguish with greater difficulty than opaque. I never could observe any change of colour in the human countenance when viewed by means of the monochromatic light given out during the combustion of alcohol with salt. Blue and yellow, I can always recognise; I never confound these with other colours, and I can discern these when the object is at a distance, or if very minute, as a narrow line or small spot; this I can do with no other colour. The only red colours I can recognise with certainty are bright scarlet and crimson; but the former of these I do not know from grass-green unless the two colours are placed side by side. I have often seen a field completely covered with the blossoms of the common poppy, papaver rhœas, but never could observe any difference between it and one covered with grass, unless I approached it sufficiently near to observe the individual flowers. Pink or rose, for instance, appears to me blue by day and red by candle-light. Purple looks like dark blue. Many of the shades of red, green, and brown I cannot distinguish from each other. I never could observe the beautiful shades of colour which foliage assumes in autumn, and which I hear so much admired. The only changes I perceive are that some leaves become yellow, and the colour of the remainder less vivid than in summer. Brown appears to me not to be a colour but only a shade, and I imagine that if made very deep it would be identical with black."

The following is the account of the gentleman who is deficient in discerning two primitive colors, but it is not known which of the three these are:—"I can see a difference in colours placed side by side, but cannot state with any degree of accuracy the names of them individually. I would not swear to any colour, but can often guess pretty accurately the colours of many articles, by considering the purposes for which the colours are frequently used; for example, I know grass is green, but if the same colour were shown me in a different form, I, perhaps, should not recognise it as the same. Again, I know gold is yellow, and silver white. I can immediately distinguish, at some distance, a sovereign from a shilling, not by its difference in colour, for that I never think of in forming a judgment, but by their general appearance. I cannot tell a gold from a silver watch by its colour, but if I take it in my hand, I soon can tell the differ-

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ence by its weight. I am frequently asked the colour of a window-curtain, and I sometimes guess right, more frequently wrong. I know that curtains are generally either blue, red, or green, and I turn it over in my mind which of the three I think most like. What first called my attention to it was, when at school I was for a short time in the habit of drawing and painting maps; for this I purchased a box of colours; after a time the names were rubbed off; then I could no longer distinguish them, so I was obliged to part with them, as they were useles to me. When in mourning for my father I bought a green coat of a dark colour, and was not aware of my mistake until a friend asked me how long I had left off mourning. I was for several years exceedingly puzzled with the rainbow, which I had heard every body speak of as being so very beautiful; it always appeared to me as a band of a lighter colour than the other part of the sky, but a little darker at one side than the other, and gradually shaded off between the two sides; but this was fully explained when I looked through a prism, which gave me exactly the same appearance, with the exception that I thought I saw through the misty shading an appearance of two or three indistinct colours.

"I have written this as correctly as I can, but cannot state particulars more minutely with any degree of certainty, on account of the difficulty I find in ascertaining my own deficiencies, from not being certain of any colour."

The casts of these gentlemen were then exhibited, and the deficiency in the situation of the organ of colour was very striking. The author took occasion to point out the importance of phrenology not only in determining the faculties of the mind, but in referring various phenomena to their true causes. Without an examination of the development of the brain at a particular spot, in persons remarkable for their acuteness or deficiency of judgment of colours, this would not be ascribed to its true cause, and the most singular explanation would be given of its deficiency; for example, Professor Dugald Stewart ascribes it to a defect in the power of conception, and this as resulting probably from some early habit of inattention. But what particular attention do children who distinguish colors accurately bestow? They distinguish without effort, and those who cannot are not only not proved to have been inattentive, but have most probably been often extraordinarily attentive, in the hope of seeing what others can see. How should want of attention to this one point be hereditary in families, passing through a generation, &c.? This is a specimen of the errors of metaphysicians; they see and generally acknowledge that the brain is the organ of the mind, yet they observe the faculties of the mind without even once considering the organ which possesses, or is employed, in the working of these faculties. Gall examined the two together, and we now know, through him, that local deficiency of brain both exists where the faculty of distinguishing colors is deficient and is hereditary; with this deficiency Dr. Dalton has endeavoured to explain this peculiarity in vision in his own case, by supposing that the vitreous humour is blue, and therefore absorbs a great portion of the red rays and other least refrangible rays; but this opinion, says Sir David Brewster, is, we think, not well founded. Sir David's own opinion, however, is founded no better, for he speaks of the defect as a singular effect of the retina. Sir John Herschell, though no doubt unacquainted with phrenology, adopts the true opinion, and attributes (in the "Encyclopædia Metropolitana") this state of vision to a defect in the sensorium, by which it is rendered incapable of appreciating those differences between rays on which their colour depends.

Dr. Elliotson showed that an advance had been made upon this subject since the time of Gall, by the establishment of the fact that the deficiency related commonly to the red ray, and urged the necessity of collecting as many of these cases as possible, with a view of determining the relative frequency of deficiency in regard to the yellow and the blue ray, and of deficiency in regard to any two of the three primitive rays. He also suggested that it would be interesting to learn whether some cases of blindness, in which the eye appeared perfect, depended upon an inability to discern any of the three primitive rays, and were attended by a total absence of the organ of colour. He also, after remarking that all cases of deficiency of the power of distinguishing colour hitherto

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examined, had been attended by a defective development of the organ, suggested that the form and extent of the deficiency of the organ, should be carefully noted in every case, that it might be known what relation, if any, existed between these and the deficiency of judgment.—*Lancet, July* 14, 8381.

7. *Weight and Bulk of the Human Heart.*—With a view to determine the bulk and weight, absolute and specific, of the human heart, Dr. JOHN CLENDINNING examined with care, nearly 400 hearts of persons of both sexes, and all ages above puberty; this organ was then measured in water for bulk, and in the balance for weight, and subsequently classified according to age, sex, and disease. The result was, that the healthy male heart averages for all ages above puberty, about nine ounces, avoirdupois, in weight, and about half an ounce less in bulk; and that the dimensions of the female heart are nearly an ounce less; it was further ascertained that in specific weight the heart varies little, appearing rather to lose in density than gain, by age or disease. It appears, further, from observations made on nearly 200 subjects, that the relative weight of the heart, after puberty, and after death, was to the whole person about 1-160th for the male, and 1-150th for the female: while, with respect to the influence of age, it was proved that the heart rises in weight, both absolute and relative, from infancy to extreme age; the increase amounting in the male, above puberty, to between 6 and 7 per cent. in relative weight, and in the female to as much as 29 per cent., the increase in absolute weight being striking in the males only: viz.—13 per cent.—*Journal of the Statistical Society of London*, July, 1838.

PATHOLOGICAL ANATOMY AND GENERAL PATHOLOGY.

8. *On Epidemic Epilepsy in Schools.* By Dr. MEYER.—The free school of Biclefield is a well-aired, not overcrowded room, in which the boys and girls are taught at the same time. A young girl of the name of Arnold had for some time been subject to epileptic fits, and had been repeatedly seized during the school hours, on which account she was forbidden to attend. Apparently restored to health she was again admitted, but on the 8th of August, 1837, she was again seized, and was in consequence carried home. A few days afterwards a strong healthy girl who had occasionally accompanied Arnold home was seized with convulsions in the school-room; on the 14th two other girls, age respectively twelve and fourteen years, were affected in a like manner; but this did not prevent them from making their appearance at school on the following morning. Scarcely, however, had the business of the day commenced, when not only these two, but likewise three other girls, were affected with epileptic convulsions, and the contagion spread with such rapidity that in less than half an hour above twenty girls were similarly affected.

At first the children experienced a feeling of anxiety; they were then observed to grow pale, there was oppression of the chest, and the head became affected; trembling of the limbs followed with loss of conscience: the thumbs were bent upon the palms, the eyes were distorted, and the patient gave vent to a sudden anxious cry. The paroxysm in some was of short duration, but in others it continued for hours. None of the boys were attacked. The temperature of the room was about 18°R. (72°F.) at noon. None of the girls attacked, except Arnold, had ever previously had an epileptic paroxysm, and no material cause for the disease could be discovered. Most of the girls were approaching the age of puberty, and they were of a highly excitable temperament.

Notwithstanding that the girls who had been affected were not allowed to return to the school for a considerable time, new cases afterwards occurred, owing, it was suspected, to some of the girls who were not completely re-established having been readmitted and having suffered from fresh paroxysms. The disease was treated as purely nervous, with valerian, oxide of zinc, indigo, &c.; but on the whole with little success, for after the lapse of five months there were very few who could be considered as safe against a relapse.

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The number of sufferers in the school of Reitberg was not so numerous, but was sufficient to show the facility with which convulsive diseases may be communicated to feeble and excitable constitutions.

A girl, aged twelve years and a half, had during two previous years suffered occasionally from epileptic paroxysms. Towards the end of May, 1837, she had an attack in the school, and shortly afterwards four others were similarly affected. In these cases no premonitory symptoms were observed; the patients uttered a shriek and fell insensible to the ground, convulsions generally followed, sometimes alternating with tonic spasms, but in the four last cases there was no foaming at the mouth, nor were the thumbs contracted. The paroxysms lasted about a quarter of an hour, rarely half an hour. The disease appeared to be little under the influence of medical treatment, at least the remedies employed did not seem to have any beneficial effect.—*B. and F. Med. Rev.* Oct. 1838, from *Medicinische Zeitung*, No. 8. 1838.

9. *Partial Sweat.*—The following singular example of partial sweating was communicated to the Medical and Physical Society of Bombay, by A. Duncan, Esq. A man was brought as a recruit to the 25th Regiment, Native Infantry, from the warlike little territory of Sawant Warree. It was found on the slightest exertion, that moisture oozed profusely from his hands and feet. He was a stout, able-bodied, healthy-looking man, such as it would be desirous to have an army composed of. The word *attention* being given, forthwith on clasping his hands, and that not very forcibly, the perspiration poured, rather than dropped from them, the ground was also bedewed around the edges of his feet, and on his changing his place, there were his foot prints in thorough wet. Being on a cow-dung floor, and desired to step about, every step was imprinted wet. His body remained unaffected.

He stated that he had been all his life subject to this affection; that he was able to work like his neighbours, but got fatigued rather soon; that the various excretions, so far as he knew, were the same in quantity and kind, as those of others; that his appetite was similar also; in short, no difference could be discovered between his usual state of health, and that of others, of good habit, excepting this singular flow of clear perspiration from the palms of his hands, his fingers and feet.

Mr. D. had no opportunity of watching the man, to know if all he had said as to his habit of body was entirely accurate; he was evidently unfit for military service, as the grasping of a musket brought the sweat streaming from his hands. —*India Journal of Med. and Phys. Science.* January, 1837.

10. *Sloughing and Discharge of about twenty-five inches of Large Intestine.*—An example of this has been communicated to the Medical and Physical Society of Bombay, by Dr. P. Brown. It occurred in a trooper admitted into hospital, Nov. 30th 1834, with dysentery. The patient had almost constant calls to stool; the evacuations were scanty, very offensive and passed with much straining: the abdomen was slightly tumid, with general tenderness on pressure, particularly on the left side; countenance anxious and pallid; tongue slightly furred at the root and centre, with raw and reddish edges: stomach irritable, pulse soft and rather quick. These symptoms continued until the 20th Dec., when, while straining at stool, there came away a membranous tube about 25 inches in length, which on examination proved to be a portion of large intestine. This was of its natural calibre but its walls were much thickened; its three coats could be readily separated.

After the discharge of this portion of intestine, the evacuations, though still dysenteric, were passed without straining, and often involuntarily; gradually, however, they became less frequent, and the power of retaining them returned. The nausea and retching ceased, but the least increase in diet always proved prejudicial. January 18th, the appetite having become very keen, chicken was allowed; much irritation resulted, and though the former diet, bread and milk, was restored, still the patient continued restless and uneasy, but without any

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alarming symptoms till about an hour before he died, on the 20th January, when he complained of excruciating pain in the abdomen.

On inspection after death, the small intestines were found so knotted together that they could not be traced: the large intestine was much shortened, and not a vestige of the sigmoid flexure existed. The rectum was much increased in capacity.—*Ibid.*

11. *Enormous Dilatation of the Stomach.*—A remarkable example of this has been communicated to the Medical Society of Toulouse by M. Serain. It occurred in a man thirty-six years of age, a great eater, and who selected for his food the most indigestible and substantial articles, and drank the strongest liquors. He had been affected for eight or nine years with copious and frequent vomitings, and was greatly emaciated. He died of influenza. On examination after death, the stomach was found enormously distended, and occupying the whole abdomen; its form natural. The diameter of its greater curvature was three feet two inches. It contained ten pounds of sanguineous fluid, and its parietes were three lines thick.—*Journ. de Med. et de Chirurg. Prat.* August, 1838.

12. *Researches relative to the causes of sudden death.*—The opinion is still entertained by most physicians that apoplexy is the most frequent cause of sudden death. M. Alphonse Devergie, who has the medical direction of la Morgue, the place where the bodies of unknown persons who die suddenly in the streets of Paris are carried, has endeavoured to ascertain how far this opinion is founded in truth, and has found that sudden death from an affection of the brain is rare. Of forty cases which he has examined, he has found four only in which death resulted solely from an affection of the brain; three in which there was congestion of the brain and spinal marrow; and twelve in which the lungs and brain were simultaneously affected. Sudden death from affection of the lungs alone is the most common. M. D. met with twelve cases of this out of the forty; and if to these we add the twelve examples of sudden death in which the brain and lungs were both affected, we shall have twenty-four cases out of forty in which the lungs were affected in cases of sudden death. Death from affection of the heart is the most rare. M. D. met with it but three times.

It results from these researches that sudden deaths are occasioned, arranged according to the order of their frequency, 1, from an affection of the lungs; 2, of the lungs and brain; 3, of the brain and spinal marrow; 4, from hemorrhage; 5. from an affection of the heart. It is consequently an error to regard apoplexy, that is, circumscribed cerebral hemorrhage, as the most common cause of sudden deaths; since of forty cases, M. D. has observed an apoplectic collection of blood but once. Sanguineous congestions of the meninges should not be ranked among cerebral hemorrhages. M. D. has further ascertained that sudden deaths are much more frequent in winter, and more common in men than women. Among the forty deaths noted, but five were of females; and finally, that sudden deaths occur principally in persons from 40 to 50, and from 60 to 70 years of age. *Bulletin Gén. de Therapeutique*, August, 1838.

13. *Purulent Discharges from the Bladder and Rectum in Hepatic Diseases, &c.* The July No. (1837,) of the *Quarterly Journal of the Calcutta Medical and Physical Society*, contains an interesting memoir on this subject, by J. Mouat, Esq. The author remarks that purulent deposits have been known from very remote antiquity; instances having been mentioned by Galen, Scultetus, Paré, Belloste, Quesnay, Butnar, and others, in which the sudden disappearance of abscess has been followed by evacuations of pus from the bladder and rectum. Purulent depositions from these organs have always been attributed to the direct opening of the abscess either into the intestines, gall-bladder, ureters, &c.; but Dr. Mouat's observations have induced him to believe, that in many cases, no such communication has occurred, these discharges being depositions or excretions in the fæcal or urinary passage. He proposed to illustrate this by cases bearing upon the point in question. That this occurrence in hepatic abscess should not have been recorded, is no reason why it should not exist; indeed in the present

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cases the observation was made accidentally. The author quotes the abscesses which form after fractures, amputations, wounds of the head, &c. as somewhat analogous, for he considers these to act as derivatives from the original seat of the disease; and he asks, why a similar event should not take place in hepatic abscess. He then adduces the known efforts of the system in relieving itself when any of its principal functions are impeded in their natural action, as evidenced in the metastasis which take place in various diseases, and which, however explained, must be allowed to exist. The author mentions also the existence of this in the veins of several people who have died of extensive abscess, as mentioned by Andral and Alison, and the case of hepatic abscess, related by Mr. Twining. where pus was found in the right ventricle of the heart. We may look, therefore, he observes, to the vascular system as the probable cause of the removal and subsequent secretion of the matter in the cases which form the subject of his paper. The Doctor then gives thirteen cases of Europeans affected with liver abscess in which pus was passed, by stool in 10, by urine in 11, by vomiting in 1, by expectoration in 4: of these 7 died and the rest recovered. On dissection of those who died, no trace of communication was discovered between the abscess and any of the outlets through which the matter had made its way; by analogy the author concludes that those who recovered were similar cases. In two instances the disease was complicated with diseased veins, having the pathognomic symptoms of Beri-beri. In almost all the above-mentioned cases, the discharge of pus afforded great relief to the hepatic disease: the swelling of the side diminished, and the patient was easier. In those which were cured, the improvement produced by the discharges was permanent. It appeared almost critical. The discharges in several instances were simultaneous with the action of mercury on the system. Dr. M. remarks, that, although in many instances of dysentery and hepatitis there is found extensive disorganization notwithstanding the most free action of mercury, nevertheless, he has observed the remission of acute disease is generally synchronous with ptyalism, and the appearance of pus always tends to quiet the constitutional disturbance and alleviate urgent symptoms.

In an appendix the author remarks upon the distinction usually drawn between phlegmasia dolens and phlebitis, and observes, that in the cases brought to his notice, the symptoms of both have been conjoined; whence he is led to believe them only varieties of the same affection, both as to violence and the order of vessels and tissue implicated, as well as some peculiarity of action in the vessels themselves, as seen in the application of blisters, where the discharge is generally watery and limpid, yet in some cases it becomes a gelatinous mass. Dr. Mouat in this part of his communication details the experiments made by Mr. McGregor, of the 39th Regiment, upon the matter discharged in one of the cases related in the paper. These consisted of the usual processes with sulphuric, nitric, and muriatic acids. That gentleman admits the well known uncertainty of the results which attended experiments of this nature, and the impossibility of ascertaining, exactly, the distinction between pus and mucus, but that, as far as he could judge, the deposits submitted to his experiments undoubtedly were pus.

Dr. Macdonald observes, that in the course of the experiments which he made upon these reports, he observed, that the pus taken from the breast of a native woman six months pregnant, when dropped into several boiling solutions, coagulated. In a solution, carbonate of potash and ammonia, a perfect coagulum was obtained; and in muriate of ammonia, a very consistent coagulum took place from very watery pus.

Some blood taken from the woman above-mentioned presented upon the under side of the coagulum some discoloured spots. These spots ran towards the centre of the clot. In the clot last obtained some of these spots became converted into an excavated scab, having the appearance of lymph or pus dried. The rounded part in both cases looked like tubercle, or the masses described by Carswell as appearing in the blood in the spleen of tubercular subjects.

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14. *Results of Re-vaccination in Silesia.*—Dr. Aggens practised re-vaccination on 962 persons, during the year 1836. The operation succeeded perfectly in 822 of these cases; in 68, the pustules did not exhibit a mature or complete development; and in the remaining 72, no effect whatever was produced by the punctures.

In many cases, the regular and characteristic vaccine pustule made its appearance as early as the third, and had acquired its full size by the fifth or sixth day. In general, the author remarked a more decided reaction in the lymphatic system, than usually happens after a first vaccination. Often did the patient, in the course of two or three hours after the operation, begin to experience a smarting sensation along the arm and in the armpit of the affected side. During the period of suppuration, the arm not unfrequently swelled considerably, and the system became somewhat feverish. But the pustules resulting from re-vaccination never exhibited *cette belle coloration perlée* of those produced by the first operation: they were of a grayish hue. On the whole, too, their progress was decidedly more rapid, more especially in their last stage, or that of drying and desquamation. In some cases, in which no regular or characteristic pustules were formed, the punctures became nevertheless surrounded with an areola of inflammatory redness.—*Med. Chirurg. Rev.* from *Pfaff's Mittheilungen.*

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15 *Results of Re-vaccination in the Prussian Army during* 1836.—The entire number of persons re-vaccinated was 42,124. Of these, 32,635, exhibited the cicatrices of a former operation on their arms. In 6,543 persons, the cicatrices were unsatisfactory; and in 2,840 there were no traces at all of them.

In the re-vaccinations of this year, regular vaccine pustules or vesicles were formed in 18,136 instances; in 9,940 they were of irregular or imperfect development.

In 14,048 the operation failed in producing any effect; but on repeating it a second time, it took effect in 1,569 cases, and again failed in 8,205 cases.

The number of pustules induced, varied from one to thirty, in different individuals.

Among all the persons re-vaccinated during this and the preceding one or two years, 14 only were attacked with any of the forms of the prevalent varioloid disease: there was not, however, a single example of genuine small-pox met with, although the epidemic existed in the country.

The lymph employed was very generally taken from the arms of young children; and lymph that had become dry was always avoided.

On comparing the results of re-vaccination during 1836, with those of preceding years, the reporter states that he is led to the conclusion that the disposition or tendency to contract a new cow-pox, (in other words, to be affected by re-vaccination,) and consequently the liability to variola, seem to be increasing every year. Of 42,124 persons re-vaccinated in 1836, the operation succeeded perfectly in more than 18,000; whereas of 48,478 persons re-vaccinated in 1833, only 15,269 were affected; of 44,454 in 1834, only 16,679 were affected; and of 39,192 in 1835, only 15,315 were affected.—*Ibid.* from *Medicinische Zeitung.*

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16. *Results of Re-vaccination in the Prussian Army in* 1837.—The gross number of troops vaccinated in the Prussian army, during the year 1837, was 47,258.

Of these, there bore traces of previous vaccination—evident marks, 37,299; doubtful marks, 6,903; no trace, in 3,056. The vaccination was followed by—regular pock, in 21,308; irregular, in 10,557; and had no effect in 15,393. The latter were again vaccinated—with success, in 2,243; without success, in 9,771.

Of the whole number vaccinated or re-vaccinated with effect, there were attacked, during the course of the year 1837, with varicella, 14; with varioloid, 7; with true small-pox none.

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MATERIA MEDICA AND GENERAL THERAPEUTICS.

17. *On Arsenic as an Antiperiodic.* By G. G. SIGMOND, M.D.—It is stated that it was during the great prevalence of intermittent fevers in Poland that the powers of arsenic as an antiperiodic were first tried. M. Desgranges has collected all that has been handed down to us on this subject.

In this country, (England,) about the year 1780, an intermittent fever invaded various parts of this island; it was of an unusual character, it continued for two years; its obstinacy eluded all attempts to subdue it, and its distinguishing characteristic was its resistance to the Peruvian bark; and great was the disappointment from a medicine which had always obtained the character of a specific. A valuable paper from the classic pen of Sir George Baker is extant on this subject; it was read at a meeting of the College of Physicians, January 10, 1785. From this we learn, "that a medicine compounded of arsenic and opium, the dose of which is a very few drops in water, was taken by some of the inferior ranks of the people, and sometimes successfully, but, now and then, violent vomitings, colics, and dysentery, were the effects of it, especially when a patient, too desirous of a compendious cure, exceeded the dose limited." We likewise learn that a practitioner in the county of Dorset, dispensed this remedy among his patients with great success. He found that it very rarely failed to stop the fits very soon; he was not aware of its composition, but stated that he had reason to think that the medicine had some active poison in it, which injured the constitution afterwards. He saw more than one case where an ague thus cured was followed by a palsy of the lower extremities, so that, at length, he was induced to abandon the remedy.

Doubtless the unscientific form in which the arsenic was used, and the badly regulated doses, which seem to have been very little attended to, were sufficient causes for the neglect of the remedy; nor can we be surprised at the language used by the authority I have just quoted; he says—"Arsenic is mentioned in books as a febrifuge, but it is one of those substances of which we are not, as yet, so far masters as to be able, by any act, to render it transferable from the list of poisons to our materia medica; and it cannot be deemed to be a proper remedy for an intermittent fever, while an intermittent fever is less formidable than arsenic." Dr. Fowler, of Salisbury, has, however, taught us how to obtain a most serviceable and valuable medicine from this highly deleterious substance; and the liquor potassæ arsenitis of our present Pharmacopœia owes its origin to the well directed inquiries of that excellent physician. We are now taught to form it of arsenious acid broken into small pieces, carbonate of potash, each eighty grains, compound tincture of lavender, five fluid drachms, distilled water, a pint. The arsenious acid and carbonate of potash are boiled with a half pint of the water in a glass vessel until they are dissolved; add the compound tincture of lavender to the cooled liquor; lastly, add besides of distilled water as much as may be sufficient that it may accurately fill a pint measure. Mr. Phillips observes, that in making this preparation, the arsenious acid usually sold in powder should not be employed, as it is very commonly adulterated with sulphate of lime or gypsum; which being insoluble in the soluble carbonate of potash, the operator supposes that it is difficult to prepare this medicine. This adulteration may be detected by heating the powder in a crucible—whatever is not volatilized is an impurity.

So highly has this preparation been estimated abroad that it is to be found in almost all the foreign pharmacopœias. Indeed, during the march of the French army into the plains of Lombardy, where, from the marshy soil, a miasma had emanated, which was infecting the soldiers, the French Directory, guided by some of those great men whose scientific inquiries were encouraged by the Government, issued a decree commanding the surgeons, under a pain of military punishment, to employ a preparation precisely similar. The highest encomiums have been lavished on Dr. Fowler; indeed, the individual who converts a poison into a valuable remedy, must richly deserve the approbation of the community.

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It has been usual to commence with about five minims of this solution twice in the course of the day, and it may, with proper precaution, be increased until more than a scruple has been taken.

I have had occasion to remark to you that its effects are much more striking in the intermittent fever occurring during the autumnal months, than during that which is prevalent in the spring; and the more intensely the miasm has acted upon the system, the more decided are its good effects, whilst cinchona, and the barks of certain trees, produce their characteristic influence during the spring, and are remarkably powerful where the disorder has not gained much on the constitution. Arsenic may, therefore, be often kept back as an ultimate resource, until cinchona has failed, which, undoubtedly, in some of those remarkable epidemics which have occasionally occurred, has been found to be the case. Intermittent fever seems to become every year more rare in this country, even in soils where it was once known to be very prevalent; and the paroxysms so easily yield to remedial agents, that so potent a medicine as arsenic, and one to which patients, in general, have a strong objection, need not, at first, be employed. Care should always be taken, before its exhibition, that the bowels should be emptied, for they otherwise are not easily acted upon, and costiveness in some cases occurs, while in others, and that more commonly, profuse diarrhœa takes place.—*Lancet*, December 16, 1837.

18. *On the use of Arsenic in Cancerous Affections.* By G. G. Sigmond, M.D.—From a very early period remarkable cures of cancerous affections were recorded by authors, from various preparations of arsenic. Amongst these, Fallopius, Bernhardt, and Roennow. Fuchsius united it with soot, and Richard Guy, with sulphur, hog's-fennel, and arrow's-foot, in order to disguise it from the patient, and it has been the principal ingredient of a great number of those quack remedies, whose bold and unprincipled inventors have obtained for themselves momentary celebrity, and ill-gotten wealth. This powerful medicine has doubtless sometimes been much misapplied in the different states of cancer; at the same time, however, medical men should not be discouraged from its not always having proved effectual, or from its having, now and then, proved dangerous. There is no doubt that any indiscretion in its use, any want of caution, may prove fatal, and notwithstanding the occasional escape of persons after the employment of fearful doses, I would impress upon your minds that you are never justified, because a solitary case, here and there, is thrust before your notice of extravagant quantities having been given, to administer, but with the remembrance of the sacredness of human life, any remedy which has the slightest uncertainty in the intensity of its action. In one of the journals I find a case where an immense quantity of arsenic was given—three hundred drops in four days—to a young lady, fourteen years of age, suffering under chorea; arsenical pills were then given "for a change;" this was continued four more days. "The nervous irritation having been supplanted by vascular action," the drug was then discontinued; and we are told by the physician, evidently to his own great surprise, that no swelling of the face was produced, "and neither dropsy, consumption, nor rheumatism, have yet supervened." It is from an American journal that this case is quoted by some of our own periodicals.

On the other hand, cases abound which show us that the most practical, the most experienced men have found the necessity of the utmost caution. In the reports of cases at *St. George's Hospital*, in the "Medico-Chirurgical Review," is a very valuable narrative of the death of a man, sixty-three years of age, who had cancer of the tongue; the whole history presents to us a most pitiable and hopeless case. No remedy was so likely to be advantageous as arsenic; five drops of the mineral solution were taken three times daily; at the end of three days the dose was raised to seven drops; on the eighth day vomiting occurred; altogether one hundred and fifty minims had been given during that time, which was little more than a grain; the remedy was, however, discontinued, but symptoms of an alarming character came on, and the unfortunate man died on the eleventh day. As was remarked by the distinguished surgeon who superintended

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the dissection, the appearances after death, as well as the symptoms that had occurred, showed that the remedy, rather than the disease, had terminated existence.

Roux furnishes us with an instance of the death of a young girl, aged eighteen, who died in consequence of the application of the *pate arsenicale* to a cancerous breast. This paste only contains one part of its weight of arsenic to thirty-two of fatty matter, and was applied on a surface which did not exceed an inch and a half in diameter, and for one single night only; next day vomiting and violent colic supervened, and, after great suffering she died in two days. Sir Astley Cooper relates an instance where a patient had a fungus in the eye, to which the solution of arsenic was liberally applied; he complained very much of pain in the stomach, and the result was that he died of the inflammation of that organ. On examination after death, the stomach exhibited the peculiar inflammatory appearances produced by the action of arsenic. These are cases which certainly must be acknowledged to be extreme ones; but I think it right to impress upon your minds the great necessity of caution and discrimination; nor do I think if any untoward event occurred in your practice, from a very large dose, that an excuse should be pleaded on the score than in some particular case such a quantity had been fearlessly employed, and, fortunately, no bad effects had resulted.

I have already had occasion to point out to you the stages in which conium, and in which carbonate of iron are to be employed in cancer, and I have now to speak of the action of arsenic; its internal use does not seem to produce such good effects as do either of those remedies, but its external application is to be recommended when the schirrus softens and ulcerates; when the general appearance indicates that the structure of the parts has undergone a considerable change; when conium is, for a time, suspended; and when there is almost an absolute certainty that the disease will progress onwards, until death shall relieve the sufferer. The action of the arsenic extends much farther than the part with which it is immediately placed in contact; it separates the mass from the surrounding parts, in the same manner, Justamond has observed, as a nut comes out of the shell; or, as if it had been cleanly dissected by the knife. Mr. Carmichael justly remarks, that this peculiar effect of arsenic has no analogy in its action to other escharotics, or even to its own action on other tumours, which produce superficial sloughs, and destroy the parts with which they are immediately blended, and their action is easily accounted for on the general principle of chemical affinities, but the effect of the arsenic cannot be explained by the same law; indeed, the peculiar digging out of the diseased mass, if I may be allowed the expression, is one of the great recommendations to its employment in advanced stages of cancer, if the morbid alterations are not upon too extensive a surface.

The Baron Dupuytren, in order to obviate the inconvenient effects which result from a more extensive destruction of diseased parts than might be wished, has given some formulæ by which the application of arsenic, both in the form of powder and of liquid, might more nicely be adjusted. The powder is made from four, or sometimes five or six parts of arsenious acid, with ninety-six parts of calomel, and he makes a solution, or paste, with gum, in which nearly the same proportions of these two ingredients are mixed, though sometimes increasing the quantities of arsenic; he first cleans the surface of the ulcer by poultices, and then touches the sore with a small bit of lint charged with the powder, so as to cover its surface with a layer of arsenic, provided the ulcer be not of great extent; when it is not advisable to cover more than one-third, or a half, the paste is applied much in the same manner, with the assistance of a spatula; the application after having produced pain and inflammation, comes away in the course of eight or ten days, and should again be renewed, according as the circumstances may require, until the complete cure is the result, which often occurs after five or six, or even a smaller number of applications; sometimes the remedy seems to produce symptoms of poisoning, nausea and vomiting coming on. He then enjoins strict attention to diet, and more particularly the restriction to the exclusive use

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of milk, as diet. There are some individuals, however, who have ascribed cancer to the use of milk, more particularly as I lately heard from an agriculturist, who has a pretension to be called a medical man, where the cows have fed much upon the different species of the ranunculus, or butter cup. It is not very long since that a diet of water only was pronounced to be a decided cure for this deplorable disease.

Mr. Blackadder, to whose experience in the treatment of ulcers by arsenic, I shall immediately advert, states that he never saw more than one instance of the deleterious operation of arsenic, externally used, although he had so frequently tried it; he attributes his success to his having always applied very large quantities, which he believes very quickly destroys the organisation, and necessarily prevent the action of absorption; but Hailes has observed, that it is altogether innoxious when applied to an abraded surface, to sores, to malignant ulcers, even in a high state of irritation, provided that the part be not recently wounded, and that no blood issues from it, for it is by the direct application to the open vessel that it is absorbed, and that with the same rapidity and certainty as if it had been injected into the veins. The powder of Frere Come, Plunket's powder, the pommade of Hellmand, which are the compositions employed most generally on the continent, to the ulcers of the face and nose, which commit such fearful ravages, generally produce eschars, considerable pain, and tumefaction; and hence the remedies of Baron Dupuytren have superseded in France these preparations; besides which great reliance has been placed on the modifying influence of the chloride of mercury, or calomel, which the learned professor uniformly joined to the arsenic, in his treatment of the various ulcerations produced by cancer, scrofula, a venereal taint, whether each appeared alone or in combination.—*Ibid.*

19. *On use of Arsenic in Hospital Gangrene.* By G. G. Sigmond, M.D.—In hospital gangrene the solution of arsenic is found most valuable. Mr. Blackadder, during the Peninsular war, employed it at Passages with the happiest effect; and Hennen, in his "Principles of Military Surgery," gives a long description of the plan that was followed. The first step was to make the sore perfectly clean, and freed from the viscous discharge; but as this cannot be easily effected by common means, without occasioning a disagreeable oozing of blood, or a considerable degree of pain, the ablution is made from two large hospital tea-pots, one containing a hot solution of the subcarbonate of soda, the other a cold one, that the one or the other may be employed as the feelings of the patient for the moment dictate; the glutinous matter which adheres to the sore may be gently detached by means of small dossils of lint; sponges are to be avoided, in consequence of the expense, for the dread of contagion must prevent their being employed more than once; dry lint may be spread on the surface of the sore, as soon as it is perfectly clean, and removed, and fresh lint applied until the sore is perfectly dry. The solution of arsenite of potash, diluted with an equal part of water, is then applied through the means of pieces of lint, which are to be well soaked, and renewed every fifteen minutes or half an hour; sometimes, on the first application, it is necessary, particularly in irritable or debilitated constitutions, to administer an opiate, and to repeat it according to circumstances. The use of the solution is to be continued until an insensible dark-coloured and dry slough occupies the whole surface of the sore, and until the patient is completely relieved from the burning and lancinating pain, which is in some degree characteristic of the disease. These cases require great personal attention on the part of the surgeon, as the application of the remedy in this form cannot be entrusted to the patient or his usual attendants; and every step of the manipulation demands great precaution, more particularly if the fingers of the surgeon should be accidentally abraded.—*Ibid.*

20. *Medicinal properties of Cascarilla.* By G. G. Sigmond, M.D.—The cascarilla has been stated, and I believe with reason, to have some influence in restoring the appearance of the menstrual excretion, after it has been interrupted

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by fever. It has a marked influence if the suppression has occurred from intermittent fever, or even from catarrhal fever; but it is not to be considered on that account as an emmenagogue; its power is only to restore periodicity, under peculiar circumstances; and this has also been remarked where hæmorrhoidal flux has been interrupted by fever. It was Louis Appinus, of Herspruch, who first, in the year 1694, pointed out this singular property of cascarilla. In an epidemic dysentery, in 1719, in France, this remedy was found more efficacious than any other. Dr. Underwood had a very high opinion, founded upon experience, of the remedial effects of this bark in the gangrenous aphthæ, which sometimes proves so fatal to children. In diarrhœa it is sometimes found useful, where it is dependent upon loss of tone of the intestinal canal.—*Ibid.* January 20, 1838.

21. *On the Chirayita Gentiana; or worm-seed plant.* By G. G. Sigmond, M.D.—This is one of those useful medicines to which we have yet to give a place in our Pharmacopœia, but which very richly deserves the highest encomiums. This plant is herbaceous, having lanceolate leaves, corolla rotate, four cleft, smooth, stamens four, capsule ovate, bifurcate as long as the calyx; such at least are the characters given in the Roxburg manuscript. It is said by Dr. Fleming to be indigenous to the mountains to the westward of the Ganges. Dr. Ainslie says what appears in the bazaars of lower India, under the Tamool name, *chayret toochie*, are small stalks of a light gray colour, and very bitter but pleasant taste; the natives consider them as tonic, stomachic, and febrifuge, and prescribe a decoction or infusion of them, in the quantity of a small teacupfull, twice daily. The specimens which I have placed before you, I owe to the kindness of Mr. Reece, by whose father it was first imported into this country, and from whom I first learned the value of this most useful tonic, which I prefer, both from the degree of power it possesses, and for the agreeable effect it produces, to every medicine of that class with which I am acquainted. It is imported in the coarse matting in which you see it enveloped; it has been at times very scarce in the drug market, but it is now very plentifully sent over to us. It is in long cylindrical stalks, externally of a brown colour, but whitish within, of a very peculiar bitter flavour, without much aroma, not at all austere; the smaller twigs are more intensely bitter than the larger ones. It yields up all its power to water, and a concentrated infusion may be obtained, so marked in its bitterness as to produce almost instantaneous vomiting: but two drachms in a half pint of water is quite powerful enough as a tonic. It seems that not only does it act upon the stomach, imparting to it a greater degree of vigour, so that the increase of the gastric juice is attendant upon it, and thus the first process of digestion promoted, but the secretion of the liver is materially improved by it; for I have always found that, where it has been given, the stools have speedily acquired the healthy tinge of bile, and also the muscular activity of the bowels has been increased, for the peristaltic action becomes more regular, and performed with more decided periodicity. So satisfied have I been with the chirayita, that I have never failed to recommend it to my medical friends, and I have uniformly found my own views confirmed by the experience of others. Several members of the *Medico-Botanical Society*, who were induced to employ it from the observations I made there, have spoken to me in very strong terms of its efficacy, and I have little doubt it will become a very popular medicine amongst you, when you have given it a fair trial. Its beneficial effects are generally much more permanent than the greater number of bitters; nor does it, as most of the barks, woods, and roots which we employ for dyspeptic states, and for all that host of morbid affections which depend upon disordered function of the stomach and bowels, ever constipate the bowels, or interfere with the healthy function of the liver; on the contrary, it corrects the secretion of the bile, and gently operates on the bowels. I have often recommended a tincture made of it in cases of indigestion occurring after mental fatigue, where the nervous system has acted upon the organs of assimilation, and with the greatest success. The tincture may be made by macerating five ounces of the chirayita in two pints of proof spirit for fourteen days, and straining. This contains all the powers of the herb; it forms a very strong but very plea-

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sant bitter, by no means unpalatable; it is grateful to the stomach, and diffuses throughout the system a genial warmth. A teaspoonful may be taken two or three times in the course of the day, in a glass of water, or in an ounce of the compound infusion of gentian, in the infusion of hops, in an infusion of camomile, or in that of cloves. In this state, however, it seldom acts upon the bowels, or produces those copious bilious evacuations which occur where the infusion has been used.

I have often found chirayita very much to be preferred to sarsaparilla when large quantities of mercury have been taken, and often, after salivation has been produced, the system more quickly recovers its lost equilibrium than from the use of any other drug with which I am acquainted. It has likewise been very strongly recommended in leucorrhœa, dependent upon a general relaxed condition of the female frame; it has even been called a specific remedy. At that period of life in which the menstrual secretion is about to disappear, and in which there is great carefulness to be observed, lest the employment of medicines injudiciously may lay the foundation for disease in the uterus or in the mammæ, this tonic is very effectual, it produces no determination to any of the organs, but combines the power of invigorating, with that of removing obstructions. I have thus spoken of a remedy from which I have derived the greatest advantages, and which I, therefore, can strongly recommend to you, begging you at the same time to bear in mind that it is not to be indiscrimately given; for, although I know of no bad effects which have been the result of its administration, still it is evidently a very powerful agent, and the Hindoos, with whom it has been long a favourite, always inculcate the necessity of caution. The morbid condition of the stomach in which it is most serviceable, is that marked by flatulence, heartburn, sluggishness of the bowels, great nervousness, want of sleep, general uneasiness, and where an indication of the disordered secretions becomes known to us by the sordes on the tongue, the high colour of the urine, and the altered colour of the fæces; where, however, the nervous system is so much disordered that the circulation has become more rapid, it has not such marked good effects, nor can it be given until due precaution has been taken completely to unload the bowels, and to diminish the tendency to excitement; and you should therefore abstain from prescribing it where there is flushed face, throbbing of the carotid arteries, sensation of burning in the palms of the hands, in the soles of the feet; should there be any confusion of mind, or unwonted state of sensation, through the usual channels, you should be cautious. Nor are these indications ever to be passed by when tonics appeared to be required, for they foretell much mischief, and there is much attention demanded in these instances amongst the class of nervous and dyspeptic patients, amongst whom, in a large city, a full share of your practice may fall, where so many causes of mental and bodily depression exist. There is amongst some of the foreign dispensatories, under the name of gentianella, a very agreeable bitter; it is the dwarf autumnal gentian, the gentiana amarella; it is a favourite amongst many foreigners, and it possesses some marked characteristics; I do not, however, think it has many claims to our consideration.—*Ibid.* January 27, 1838.

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22. *On the Quassia Excelsa.* By G. G. Sigmond, M.D.—The wood of the tree known in the West Indies by the name of bitter-wood, or bitter-ash, has been, since the discovery of the New World, introduced into practice as a useful tonic, and as a powerful bitter, and these are its chief characteristics; it is deficient in aroma, nor has it any of that grateful flavour which belongs to the greater number of this class of useful agents. It is a cheap substitute for some of the more agreeable bitters, and it is occasionally found amongst the unfortunate class of persons who have been addicted to dram-drinking, more efficacious than the more delicate tonics. Some of the hospital and dispensatory patients prefer it to any other, and seem to derive very considerable benefit from persevering in its use, where the natural tone and vigour of the stomach have been much impaired by the destructive agency of ardent spirits. It cannot, however, be taken by those who are in possession of the due functions of the stomach, without feeling a

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degree of nausea, which becomes insupportable if a large quantity is swallowed.

All the bitterness, and with it, the medical properties, are very quickly taken up by water; and the formula, for the infusion of quassia is thus to be made:—Take of sliced quassia two scruples, boiling distilled water a pint, macerate for two hours in a vessel lightly covered, and strain. As very few substances produce much alteration upon this infusion, it may be combined with the greater number of salts; the preparations of iron do not affect it; the nitrate of silver, however, causes a soft flaky yellow precipitate, and the acetate of lead a copious white precipitate. It is generally necessary to prescribe something in union with it, such as the compound infusion of orange peel, the infusion of camomile, and a few drops of sulphuric acid, which generally render it much more agreeable to the stomach, and likewise seem very much to influence its good effects. Alcohol, likewise, takes up its bitterness; and of this both the Edinburgh and Dublin Colleges availed themselves for the preparation of a tincture; but I am not aware of any advantages which it possesses, the infusion answering all the purposes. In powder it can scarcely be given, as it cannot easily be reduced to that form, and the raspings are somewhat tough and indigestible; I have, however, known it chewed for an hour or two before dinner in a very wretched dyspeptic case, with something like advantage; it alone could give an appetite for food.

There is little doubt, in the bilious fevers of hot climates, it has proved eminently successful. Gibson and Lettsom have pronounced it serviceable in these diseases. It has obtained a reputation abroad in hysteria, in gout, and in periodic headaches. Its most striking characteristic is its power of retarding the progress of putrefaction; a small quantity of infusion will, if added to meat, prevent its speedily losing its odour and natural appearance, and hence it has been classed among the antiseptics; this does not seem to depend upon its bitterness, for other bitters have but little of this power. In diarrhœa, dependent upon a laxity of the muscular fibre of the intestines, it has also been very highly lauded, and its bitterness has led to its use as an anthelmintic. This drug has been often added to beer to give the bitterness which belongs to the hop, but it is very prejudicial, and beer thus formed is very apt to affect the bowels; and it wants altogether the fine flavour and agreeable aromatic odour which is obtained from the hop.—*Ibid.*

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23. *On the Therapeutic properties of the Cocculus Palmatus or Calumba Plant.* By G. G. Sigmond, M.D.—The knowledge we have of the value of the calumba root is principally to be ascribed to Dr. Percival; his essays, medical and experimental, contain some very valuable dissertations on many subjects, and amongst them is one entitled, "Observations and Experiments on the Calumba Root." It has been found that modern practice has verified the inductions of Dr. Percival, and the diseases in which he recommended it are frequently controlled by its use. In diarrhœa, and more especially that which proceeds from an inordinate secretion and discharge of bile, where astringents would be hurtful, it seems to correct the irregular action, and to diminish gradually the increased action of the liver. In bilious colic, where there is severe sickness and vomiting, it has been also much prized. It was prescribed with very considerable advantage by Mr. Johnson, in the East Indies, who had the care of a hospital ship, during the prevalence of the cholera, and it sooner checked the vomiting than any other remedy which was used. It has been employed with success in bilious fever; and Dr. Haygarth, in a fever of that kind, which had been epidemic at Nantwich, and other parts of Cheshire, found it to supply the place of cinchona bark, correcting the bile, restoring the proper tone of the stomach, and of the whole habit; it also prevented relapses, to which, in that fever, the patients were very liable.

During dentition children are very apt to be subject to severe vomitings and diarrhœa, and very often instant relief is procured by the calumba root, when other efficacious remedies have been tried in vain. In enfeebled states of the

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stomach, brought on by dissipation, by hard drinking, where the appetite fails, where nausea and flatulence distress the individual, this may be administered, combined with the common gentian, or with chirayita, infused in a little Madeira wine; and, during its use, the tincture of rhubarb may occasionally be prescribed as a warm and strengthening purgative. Vomiting, arising from disordered function, from depraved secretions of the gastric and pancreatic juices, when it is totally independent of any diseased action of the kidneys, which is more generally the cause of habitual vomiting than anything else, is essentially relieved by the occasional use of the calumba root, and then it is very necessary to combine it with warm cordials, with the diffusible stimuli, or any of the aromatic bitters. In that highly distressing state of stomach which occurs in the earlier stages of pregnancy, where nausea and sickness are the constant attendants of the early morning, where the sight of almost any food is very apt to produce vomiting, and where the want of appetite, or a depraved desire for food occurs, I have very constantly recommended the infusion of calumba, with very great relief to the patient, more particularly where the bowels are kept in a gently relaxed state by magnesia, which, by its absorbing power, and its neutralisation of the acid which is at this period generated, becomes a mild and gentle aperient, and at the same time alleviates the disordered sensations that are so usually complained of.

Calumba root has the power of retarding putrescency, and has been observed to moderate alimentary fermentation without suspending the process of digestion. As its taste very much resembles mustard, Dr. Percival was led to make some comparative experiments, with infusions of calumba, of mustard, and of chamomile, and they were in favour of the calumba root. He was, therefore, led to the conclusion, that it had the advantage over other bitters in disorders of the stomach attended with "violent fermentation of the food." Certainly, where there is an extrication of a gaseous flatus, and much acidity, it has very considerable powers, and may be safely taken by the dyspeptic a few minutes before a meal. It appears neither to increase the fulness nor to affect the regularity or velocity of the pulse. It is particularly serviceable where a milk diet has been found necessary for the nutrition of the body, for it prevents the acidity which is so generally the consequence, and likewise diminishes the tendency to flatulence.

Dr. Denman has found it preferable to bark in the low stage of puerperal fever. As for any benefit in phthisis pulmonalis and in hectic fever, I believe little to be derived from it further than that the organs of digestion are better capable of bearing it as a tonic than they would the Peruvian bark, which, in some instances, produces diarrhœa. The chewing the root has been recommended in dyspepsia, in pyrosis, and in gastrodynia; altogether it may rank as an agreeable tonic, free from the objections which are raised to the stronger bitters, and sufficiently powerful to strengthen the system where no very acute disease, nor any very materially altered state of organs has occurred.—*Ibid.* February 3, 1838.

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24. *Kreosote in Gastro-enteritic Irritation.*—Dr. John Burne has employed Kreosote in various forms of irritation of the bowels and stomach with great advantage. For the relief of the nausea and morning sickness of intemperate persons, he states it to be strikingly efficacious.

He gives it in the dose of from one to two minims with ʒj of mucilage, and ʒix of water. The dose may be repeated in three, four, or five hours.—*London Med. Gaz.* Aug. 1838.

SPECIAL PATHOLOGY AND SPECIAL THERAPEUTICS.

25. *On Extension, Shampooing, and Percussion* (Percussion Cadencée) *in the treatment of Muscular Contractions.*—The *Revue Médicale* for Jan. 1838, contains a very valuable paper on this subject by Dr. Recamier, the distinguished physician to the Hôtel Dieu of Paris.

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The peculiar functions of all the organs of the body may be disturbed, Dr. R. remarks, either directly or indirectly—the deviations from health being in many cases dependent upon the state of an organ at a distance from the one which exhibits the morbid phenomena.

The contractile functions of the muscles, involuntary as well as voluntary, not unfrequently exhibit the truth of this remark. Dr. R.'s object, he says, in adducing the following cases is to point out the great efficacy of simple mechanical means in rectifying many muscular ailments.

1. About eighteen years ago, Dr. R. was consulted by a middle aged gentleman, who had for upwards of four years been regularly nailed to his bed by a pain in the right side of the neck, shoulder, and arm, which was so agonizing on the slightest movement that often he could not refrain from screaming out.

All sorts of anodynes and emollients had been ineffectually tried. Dr. R. advised the use of percussion repeated at regular intervals (*percussion en cadence*,) with the hand on the affected part. At first it was to be administered in gentle taps, and gradually with more and more forcible beats. By the aid of this simple means alone, the patient was speedily relieved from all his suffering, and was soon enabled to resume his duties as a judge of the peace.

2. A young girl, 18 years of age, was admitted, in 1836, into the Hôtel Dieu, under the care of M. Recamier, for pleurisy. At the beginning of the following year, the catamenia, which for sometime back had been scanty, were suddenly arrested by exposure to wet and cold. Dyspnœa and general *malaise* were the consequence. She was re-admitted into the Hôtel Dieu. Leeches were applied repeatedly to the vulva; but then the left arm, fore-arm, thigh and leg, became affected with extreme rigidity, and these symptoms were accompanied with retention of urine, and with a most painful difficulty in evacuating the bowels.

Bleeding, anodynes, in enemata, as well as given by the mouth, &c., &c., were freely employed, but with no avail; and this poor creature remained for two entire months in this most distressing situation of stiffness of the left limbs and retention of the urine and the fæces.

On examining the rectum it was found not to contain any hardened fæces; but the *sphincter ani* was exceedingly contracted.

Dr. R. dilated the stricture; the pain, although severe at the time, ceased almost immediately, and the evacuation of the bowels became at once much more easy.

The result of this first trial induced Dr. R. to treat the urinary affection in a similar manner; and with this view he began to work or knead (*masser*) the neck of the bladder against the pubes, by means of a finger introduced into the rectum; the strangury ceased as quickly as the constipation had done.

Dr. R. then resolved to apply a similar mode of treatment to the contracted muscles of the limbs, acting as in cases of ordinary cramp.

He commenced with the arm; and it was not without great difficulty that he overcame, little by little, sometimes by continued efforts, and at other times by efforts at regular intervals, the resistance of the extensor muscles of the fore-arm, the flexors of the hand, and also of the deltoid and other muscles of the shoulder-joint.

By dint of patience, however, the arm was bent, the hand opened, and the arm was gently removed from the side; then laying hold of the hand, Dr. R. kept swinging it about.

After this rather violent, and moreover painful, manipulation had been continued for some time, it was found that the patient was able to move her arm about herself.

Dr. R.'s attention was then directed to the affected lower extremity; but here it required the strength of three people to bend first the knee and then the thigh on the pelvis. We may readily suppose that these efforts were attended with great suffering to the patient. When the pliability was once restored, the limb was swung about from side so side for some time. This did not require

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to be continued long, till the girl was able to use the limb herself, so as to walk about the ward.

Gradually she recovered the use of all the contracted parts, so that she soon left the hospital nearly quite well.

The *third* and *fourth* cases were of wry neck; in both, the disease was cured by the gradual but forcible extension of the contracted muscles.

The *eleventh* case which M. Recamier relates, was one of permanent and painful rigidity of the muscles on the back of the neck, in an elderly lady, who was in consequence of the affection confined constantly to her sofa. A variety of means had been ineffectually tried for a length of time, when, on the suggestion of our author, shampooing and compression speedily effected a cure.

5. Five and twenty years ago, Dr. R. was consulted by a lady, who had long severely suffered from a *fissure of the rectum*, for which the late Baron Boyer had divivded the sphincter.

The operation, however, did not prevent a relapse of the disease, and the patient continued to suffer dreadful pain in the rectum, especially on going to stool. Dilatations of the sphincter and of the lower end of the rectum by means of bougies, gradually increased in size, ultimately succeeded in effecting a perfect cure. It is to be remarked that in this, and in many other similar cases, the dilatation was attended with excruciating pain.

Dr. Recamier mentions several other instances of painful constriction of the anus, either simple or complicated with hæmorrhoids, fissures of the rectum, &c., in which the use of gradual but forcible distension of the gut was speedily followed by great relief, and ultimately by complete recovery.

He adds that the surgical operation of dividing the sphincter may be dispensed with in the majority of cases.

6. Several years ago Dr. R. was sent for to a middle-aged lady, who was suffering dreadful torture from a nervous apyretic fever.

Without delay, he placed his extended palm on her belly, and commenced a gradual and firm compression—this had not been continued long before the severity of the suffering quite ceased. In a future paroxysm, I made her waiting-maid sit upon her mistress's abdomen; and this mode of compression was speedily effectual.

In another case of a like nature, he used with success a band drawn very tightly round the abdomen; adding, if necessary, a pad or cushion over the seat of the pain at the same time.

When in severe colic the intestines are felt through the abdominal parietes, like hard cords or serpents, Dr. R. has repeatedly relieved the patient's sufferings by kneading them, as it were, with his hands, so as to overcome their unnatural state of constriction.

7. A lady, thirty-two years of age, had long suffered from excruciating pains in the hypogastrium, unattended, however, with fever. On examining per vaginam, the uterus was felt to be quite healthy; but, on examination by the rectum, the posterior surface of the uterus was found to present several inequalities to the finger. This case Dr. R. regarded to be one of a purely nervous, or muscular character, and likely therefore to be benefitted by compression.

Grasping the uterus in the hypogastrium with his left hand, he pressed upon, with two fingers of his right hand in the rectum, the inequalities just now mentioned; he was surprised to find them gradually disappear; while at the same time the patient, who at the beginning of the experiment suffered most severe pain, declared that she was now comparatively quite easy.

These inequalities having been in this manner dissipated, on three or four occasions, the pains ceased to return.

The cure was rendered permanent by the use of a bandage, tightly laced under the pelvis and hypogastrium.

What relation is there, inquires M. Recamier, between the cause of these uterine pains and the partial spasms of the womb—an organ which we know to be muscular and eminently contractile?

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The next two cases, which our author records, are instances of violent intestinal spasms, which were speedily relieved by the employment of forcible compression, and of enemata of warm water administered at the same time.

10. A lady, thirty years of age, had for several months been affected with a permanent and apyretic hiccup, the fits of which were so violent, as quite to lift up and shake every part of the body. Various remedies of an anodyne, antispasmodic, &c., nature had been employed, but without decided benefit. I suggested the use of a firm belt, provided with a pad or cushion, placed over the pit of the stomach. By this simple means alone, the patient got entirely rid of her annoying ailment.

12. A young lady was, in 1834, affected with various chlorotic symptoms, for which steel, active exercise in the open air, &c. &c. were recommended by Dr. Colson, of Beauvais. In 1835, after exposure to wet and cold, she began to be affected with an incurvation of the spine to the left side, so that the trunk formed at length an angle of forty-five degrees with the vertical axis of the pelvis; and, at the same time, the right shoulder was lifted up to almost a level with the head, and the right forearm was immovably contracted upon the arm. Such was the condition of this poor invalid when she was sent to Paris to be seen by MM. Andral and Marjolin, and by myself.

Leeches, cupping over the spine, baths, &c. had been repeatedly tried; but without any effect. The result of the metropolitan consultation was to recommend the use of gymnastic treatment, of fumigations, of leeching and cupping, of embrocations, &c.; but these means were used with no better results than heretofore.

She was then put under the care of M. Guerin, and subsequently of M. Humbert at Morlaix; and, although nearly two years were spent in trying various remedies, the condition of the patient was little, if at all, improved.

Upon her return from Morlaix, she once more consulted M. Recamier, who, remembering the striking results obtained in the second case, suggested to M. Colson to try a similar mode of treatment.

Severe pain was caused by the forcible extension of the forearm, combined with the shampooing of the biceps muscle. This might have been expected, seeing that the muscle had been permanently contracted for upwards of three years. The gradual extension and kneading of the muscles of the affected shoulder, and of the trunk, were attended with much less pain; indeed the manipulation, although very irksome, was almost immediately followed by a feeling of great relief. The improvement of the state of the shoulder and of the affected side of the neck was speedily most remarkable; the condition of the arm and fore-arm was not so promising.

By continuing, however, steadily the same plan of treatment, this young lady gradually recovered the use of the contracted limbs, and was enabled to resume her former habits; whereas, during the preceding three years, she had been quite shut out from society, and an object of great helplessness.

13. Last December Dr. R. was sent for to meet MM. Chevreux and Lisfranc in consultation upon the case of a middle-aged lady, who had been affected some months previously with hysterical ailments; on the cessation of which there supervened a violent pain, first in the coccygeal, and then in the cervical and occipital regions, recurring in fits of the most excruciating agony.

During the continuance of these most severe sufferings, there were also, now and then, symptoms of a subacute inflammation of the uterus and its appendages present.

The patient had been visited by MM. Andral and Chomel. A host of medicines, antiphlogistic, anodyne, epispastic, derivative, &c. had been tried; but without any decided benefit. The quantity of opium, which she had taken without producing even narcotism, was immense. What had produced perhaps more relief than anything else was the application of four grains of the extract of stramonium to a blistered spot on the scalp: but the symptoms of poisoning

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from it were so alarming that the physician was unwilling to repeat the remedy.

M. Recamier having attentively studied all the phenomena of this very aggravated case, suggested the following means to be tried: a firm belt round the hypogastrium, provided with a strap and cushion to compress the os coccyx and the fundament; enemata of assafœtida, camphor, castor, opium, and sometimes of quinine, when the return of the paroxysm appeared to be at all periodic; the internal use of pills of musk, camphor, and assafœtida; electro-puncturation; and lastly, the extension and shampooing of all the muscles which were at any time affected with cramp.

Before leaving the house of the patient, M. Recamier had an opportunity of witnessing one of her dreadful paroxysms of pain, which had, hitherto, usually lasted for three or four hours; the head was thrown backwards, and her features were distorted by convulsions. Having satisfied himself that the muscles on the back of the neck and shoulder were violently contracted, he requested MM. Chevreux and Lisfranc to fix the two shoulders, while with one hand he (M. Recamier) forcibly drew the head forward, and with the other he shampooed the affected muscles.

The patient all this time was screaming out with pain; but no sooner was the head fairly bent forward than she began to smile, and confessed that she was quite easy. M. Recamier advised that the head should be moved about from side to side for some time, in order to prevent the speedy return of the cramp.

The subsequent relapses of the disease were always treated in the same simple manner, and with equally gratifying success.

M. Recamier closes his interesting and instructive paper by the enunciation of the following conclusions:

1. It is necessary to discriminate those spasms or muscular contractions, which are not dependent upon, or proceed from, an affection of the nervous system, but which constitute a direct lesion of the contractile functions of the voluntary or involuntary muscles themselves.

2. In idiopathic muscular contractions, in wry-neck, in dyspnœa, in spasmodic colic, in permanent spasms of the sphincters, &c., the use of extension, compression, and shampooing, and the application of the cupping-glasses, seem to be by far the most efficacious means of treatment.

3. Hence it is rarely necessary to have recourse to section of the contracted muscles in torticollis, or in contractions of the sphincter ani; except in cases where there is an actual degeneration or morbid change of structure in the part.

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25. *On the Treatment of Anasarca and Ascites by Acupuncture.* By Professor Graves (extracted from his clinical lectures delivered at the Meath Hospital Dublin, Session 1837-8.) I do not mean to enter into the history of this man's case, as it is sufficient for my present purpose to state that the belly was enormously distended, and the integuments so tense that it was quite impossible to ascertain the state of the liver or spleen; his lower extremities were also greatly swollen. In a case of this kind you have little to hope for from the use of diuretics, for the system is so oppressed by the great quantity of the effused fluid, that it cannot make an effort adequate to effect its absorption. The first step in all such cases must be the removal or diminution of the fluid by means of an operation. In the first place, the fluid might be removed from the cavity of the peritoneum by paracentesis, and the general anasarca might be relieved by allowing the fluid to drain off through small incisions or punctures made with a lancet in various parts of the body. For many reasons, I did not consider this to be a proper case for paracentesis, and therefore determined to try the effects of acupuncturation—a remedy frequently employed in this hospital during the last three or four years, and which, in some instances, has proved successful: I say in some instances, for there are too many cases of dropsy, in which the causes of the disease are of an incurable nature. Under favourable circumstances, and

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in a good constitution the simple operation of evacuating the fluid by punctures made through the skin, has been, in itself, sufficient to effect a cure. Thus, in a lady, a general anasarca came on after fever, and resisted every form of treatment I could devise; but when I had made many fruitless attempts to produce absorption by means of internal remedies, another practitioner was called in; he tried acupuncturation of the lower extremities, and succeeded completely. You perceive, therefore, that although mechanical means are not addressed to the cause of the disease, and appear to be nothing more than mere palliatives, they nevertheless may sometimes effect a cure. You will find, in a late number of the MEDICAL GAZETTE, a very interesting letter from Mr. King, detailing the particulars of the treatment of a case of ascites by acupuncturation. Here, as in the new method of treating hydrocele, the object was not merely to give vent to the fluid, but to cause it to be effused into the subcutaneous cellular tissue, external to the dropsical cavity; in its new situation the fluid is not only more readily absorbed, but is useful in preventing a fresh deposition within the sac, outside of which the fluid now is, and on which it exerts a very considerable pressure. Mr. King made more than seventy punctures in the space of two or three months, and was perfectly successful. I must refer you to his letter for the very novel and instructive details.

As yet, I have had no opportunity of trying this plan in ascites, but I have seen acupuncturation applied in anasarca on several occasions. I do not think the case before us one of those in which permanent benefit may be expected, but you have all seen that considerable relief has followed a single trial of the remedy.

Most of you have, I presume, witnessed the performance of this operation by Mr. Parr. The needle is passed with a quick motion through the epidermis and cutis, and pushed on until it enters about half a line or a line into the subcutaneous cellular tissue. The punctures are about three quarters of an inch apart, and mark the angles of imaginary squares extended over a considerable portion of the swollen lower extremities. As soon as a sufficient number of punctures has been made, the patient, if able, is directed to sit up and let the fluid drain off. In this way a large quantity of water is withdrawn gradually from the system, and at little or no inconvenience to the patient. While the patient is sitting up it will be necessary to envelop the legs in flannel to protect them from cold, and the feet should rest on a piece of perforated board, by which means they may be kept as dry as possible. In will be also necessary to smear the punctured limbs with fine olive oil, night and morning, so as to prevent any bad effects from the contact of fluid. By adopting this simple precaution, you will greatly diminish the risk of erysipelas—an accident not uncommon in such cases, and not unfrequently attended with the most dangerous consequences. When the sick person is confined to bed and unable to sit up, a large piece of oil-silk should be placed under his legs, and they should be enveloped with plenty of finely-carded Georgia cotton wool,* which is to be changed as soon as it becomes moist. This serves the double purpose of absorbing the discharge, and protecting the limbs from pressure. I look upon this opperation as possessing many advantages over the usual mode of making incisions with a lancet, for there is less risk of bringing on erysipelas. Here is one of the needles generally employed by Mr. Parr—you perceive it is about the size of an ordinary glover's needle, and of a triangular shape. The reason of its being made triangular is, that the puncture of such an instrument is less apt to close, for obvious reasons. The quantity of water which sometimes drains off from the punctures is very remarkable; you have witnessed the vast quantity of fluid which flowed after the punctures in the present case. When the dropsical swellings return, after a temporary cure, effected by acupuncturation of the legs, it is not practicable, in most cases, to have again recourse to the remedy, for the subcutaneous cellular tissue becomes somewhat indurated, and less pervious, in consequence

* French wadding will not answer as well as the finely-carded Georgia cotton wool.

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of the certain degree of inflammation which follows this operation: in such cases, some other part of the limb or surface must be chosen.

It is curious to observe the physiological effects of this simple remedy. As there is a communication between the cells of the cellular membrane all over the body, it is easy to conceive that the anasarcous fluid may drain off through punctures in the extremities. It is more difficult to explain how evacuating the water through punctures in the lower extremities can diminish the ascites. There is no direct communication between the cavity of the peritoneum and the general cellular membrane of the body, as may be proved by the fact of persons being afflicted with ascites for months, or even years, without any œdema of the lower extremities ensuing. This fact is quite sufficient to prove that no direct communication exists between the abdominal cavity and the subcutaneous cellular tissue of the lower extremities, and consequently *that* the fluid of ascites cannot be mechanically evacuated by drains established in the legs. How, then, is the diminution of the ascites produced? By the relief which the general system experiences from taking off an oppressive load of fluid, by emptying the subcutaneous cellular tissue, the general disturbance is lessened, the energy of the absorption increased, and a quantity of the intra-peritoneal fluid is consequently carried off. It is unnecessary to say more respecting the treatment of this case. I shall only observe, that in cases of dropsy, when you have produced a large drain from the system, you must support the patient by means of nutritious diet and wine, combined with full doses of opium*.—*London Medical Gazette*, October, 1838.

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27. *Examination of the received doctrine of Bright's Kidneys.* By Professor Graves.—The next patient to whom I shall direct your attention is a man named William Barton, lying at present in the large chronic ward, for many years a soldier, and much exposed to the vicissitudes of climate in various foreign stations; he has also been affected with dropsy for the last twelve months. When admitted, he was labouring under confirmed dropsy, unaccompanied by bronchitis and bowel complaint. He had, in fact, general derangement of the mucous surfaces, with ascites and anasarca. The usual comforts of an hospital, rest, and attention to diet, were the only means employed for the first fortnight, and these proved so far successful that the bronchitis gradually disappeared, and the bowel complaint completely subsided. It was observed, at the period of his admission, that the urine was highly albuminous, and, in this point of view, the case is deserving of attention. He was treated successfully, and as the dropsical symptoms disappeared the urine became less and less albuminous, until at length it was quite natural. This man's urine was examined daily by Mr. Moore, of whose attainments as a chemist I can speak in the highest terms. As I have already remarked, the albumen wholly disappeared, and the urine again assumed its normal character. In this way the man continued for about a fortnight, and, being greatly interested in the case, I had the urine examined every second or third day, and watched the result with the closest attention. It remained still without a trace of albumen. On last Friday, the poor man being apparently convalescent, and walking about the ward, caught cold in consequence of a draught of air from an open window, was attacked with rigors and symptoms of feverish excitement, and next day we found him labouring under erysipelas of the face. While engaged in examining him I asked to see his urine. He said there was none in the vessel, but that he thought he could pass some; and accordingly he did pass about half a pint of healthy-looking urine, but we found it to be highly albuminous, and of the specific gravity 1027. Here, then, is a case which speaks volumes with regard to the pathology of albuminous urine. A man, labouring under chronic dropsy, presents himself for admission,

* This man's case was apparently so hopeless, when admitted, that none of the pupils thought it worth while taking notes of its progress. The operation of acupuncture was several times performed, and with the aid of the usual internal treatment, a struggle protracted for several months, ended in perfect recovery.

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and on examination we find his urine to be highly albuminous. Without any active measures, and almost wholly by the efforts of nature, the dropsical symptoms gradually disappear, and the urine becomes, *pari passu*, less albuminous, until at length it assumes the natural character, and ceases to exhibit the slightest trace of albumen. This natural state of urine continues for a fortnight, when suddenly he catches cold, gets erysipelas, and in the course of a few hours the urine is found to be highly albuminous again. Before this accession of erysipelas his urine was not only free from albumen, but was perfectly normal; in colour, chemical composition, and odour, resembled the urine of a person with a good digestion subsisting on a very nutritious diet. The very hour the erysipelatous disturbance came on there is reason to believe that albumen again made its appearance in the urine; in a few hours it was present in great quantity, although the secretion had a high specific gravity and a deep colour, by no means usual concomitants of albuminous urine. After proceeding for some days in the ordinary way, the erysipelas took a most unexpected and singular turn, extending from the skin by the angles of the mouth to the inside of the cheeks and lips, and finally spreading by the fauces to the larynx, where it produced suffocation. Erysipelas does not in general attack internal parts by extension from the surface. When erysipelas on the scalp affects the brain it does so without creeping inwards through any of the cranial openings. In one case, however, which I treated, fifteen years ago in the Old Meath Hospital, the erysipelas obviously crept in, *as was proved on dissection, by the orbit;* but this is very rare indeed, and so likewise is the extension of erysipelas from the face to the larynx.

This man's kidneys were found somewhat enlarged, and at first I thought they were otherwise natural, but a further examination and maceration convinced us that the cortical substance was paler than usual. Increase of size, paleness, and, *perhaps*, a very slight softness of the cortical part, constituted the whole change; there was no appearance of granulations either on the surface or in the substance of the kidneys, Does not this case, gentlemen, render it extremely probable that the general state of the constitution influences the appearance of albumen in the urine, more than any change in the structure of the kidneys, for here, the same kidney secreted, within a very short space of time, perfectly healthy, and very albuminous urine? This case, indeed, seems to establish the conclusion which I have before advocated in the "Dublin Journal," that Bright's kidney and albuminous urine are effects produced by the same general cause operating, in dropsy, on the constitution; in this point of view I shall consider, them, and my opinion is further confirmed by a very remarkable case published in the same Journal, No. 36, January 1837. by Mr. Morrison, page 474, who makes the following observations:—

"In making a few cursory remarks on the preceding case I may first direct attention to the albuminous state of the urine. At different periods, during the last five years, this fluid was examined by different practitioners, and found coagulable by heat and acids. Now, I believe it is nearly agreed, that the above state of urine designates a peculiar granulated structure of the kidneys. But here is a case, and it is the only one of which I am aware, that undeniably proves that albuminous urine may be voided even for years, without the existence of even a resemblance of such a structure in the kidneys. Drs. Hacket and Erskine, and Mr. W. Bell, who were present at the examination, remarked that the kidneys presented a perfectly natural appearance, except that of their blanched colours. I have no doubt that Dr. Bright's statements, relative to albuminous urine, will generally be found correct; but I think the foregoing case will bear me out in saying, that exceptions to them will occasionally occur, and certainly it is right, and in my opinion, not at all detracting from Dr. B., that the profession should know there are exceptions."

This is a subject concerning which I have so often written, that I am afraid of appearing guilty of a needless repetition; its importance, however, will, I trust, prove a sufficient excuse for the following observations. If albuminous urine may be secreted by kidneys in no way affected with the change of structure described by Dr. Bright, then there is strong reason for disconnecting the

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two, and not considering them as cause and effect. Now, in confirmation of the above case related by Mr. Morrison, I myself have witnessed a dissection of a boy who had dropsy, with highly albuminous urine, after scarlatina, and in whom the kidneys presented a perfectly healthy structure; and Dr. Forget, of Strasburg, has recorded several others. His seventh case,* says the reviewer, "is especially interesting, as it affords an indisputable example of a most complete *albuminuria* during life, when the kidneys were found to be *parfaitment sains, sans anémie et sans granulations.* The heart was hypertrophied and the mitral valve ossified. In Dr. Forget's eighth case the urine was albuminous, but the kidneys perfectly sound. This patient likewise had organic disease of the heart."

In Dr. Forget's second case of dropsy, with albuminous urine, the patient recovered, and the urine became healthy. If, then, kidneys of a perfectly healthy structure may and do secrete, and that in numerous instances, a highly albuminous urine, and if, as in the man who gave occasion to these remarks, Bright's kidneys may secrete a perfectly healthy urine, can we attach much value to an hypothesis which seeks to establish a connection, as cause and effect, between Bright's kidney and albuminous urine? From the time this doctrine was first brought forward, I was led, by my own observations, to doubt its accuracy, and I now feel satisfied that it is incorrect. Let me conclude by repeating what I have said on a former occasion, that in dropsy, where a secretion of an albuminous fluid takes place into the serous cavities and cellular membrane in such abundance, it is easy to understand how the urine may be likewise impregnated with albumen, independently of organic alteration in the kidneys. No gland seems more liable to multiform and often sudden alterations of secretion than the kidney. At one hour healthy, deep-coloured, and of considerable specific gravity, mental motion, or an hysterical affection, may render it the next hour pale, aqueous and very different in chemical composition. To-day, in consequence of indigestion brought on by error of diet, the urine may be loaded with lithates, and may contain purpuric acid; to-morrow the former have been reduced to their natural proportions, while the latter has entirely disappeared. Again, if a peculiar change in the substance of the kidneys is necessary, to give rise to the presence of albumen, how does it happen that much greater alterations take place, permanently, in that secretion, without apparent deviation from its natural structure? The kidney of the lithic acid diathesis differs not from the kidney of the phosphatic, and in alternating calculus we do not find the renal organization varying as the urine contains, at different stages, a superabundance of lithates, of phosphates, or of oxalates. Why should the secretion of a simple animal principle, like albumen, require a change of structure in an organ which can accomplish the formation of such a variety of products, retaining all the time its ordinary size, consistency, and colour? This reasoning, together with the cases adverted to above, leaves little room for doubt on the question a tissue.

We have seen it assumed that *renal hyperæmia* of an active nature constitutes the change the kidney undergoes; I have already remarked that no two conditions of an organ can be more dissimilar than this hyperæmious state, and the yellow granular degeneration forming the extreme specimens of the disease; and yet we are taught that each of these morbid conditions of the kidney, not only differing from, but opposed to each other, gives rise to the secretion of albuminous urine. I have already shown that albuminous urine is often secreted by healthy kidneys; and Dr. Solon, who has lately published, at Paris, a very learned work on this subject, admits that in his twentieth case the albumen disappeared during four days, *at least*, before death, and yet the kidneys were hyperæmious. An accute and intelligent reviewer of Dr. Solon (Lancet, June 23, 1838,) remarks, "In alluding to those cases, distinct from Bright's disease, in which albuminous urine is found, Dr. Solon justly observes that they in no-wise disprove the connection which may exist between the renal lesion, and that condition of the urine. The only fact," he continues, "capable of doing so,

* See "Medico-Chirurgical Review," by Dr. Johnson, (New Series,) No. 56, p. 544.

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would be the existence of the renal disease, well characterized, without albuminous urine. Now, this has never been observed."

This I am very willing to admit, but draw from it a very different conclusion; *for to me it appears that the albuminous state of the urine is the cause of Bright's disease, and not the consequence.* In dropsy, a tendency to excessive secretion of albuminous fluid is observed all over the body, and in the kidney as well as in other parts; now as the secretion of urine takes place in extremely minute tubuli in the cortical substance of the kidney, and as its secretion is accompanied by the formation of various salts and acids, no wonder that *a deposition of albuminous molecules should be separated by coagulation, and should remain in the secreting tubes, which they gradually fill and distend, and thus give rise to an obliteration of tissue, termed Bright's disease.* This is a new, and, I think, a correct view of the subject, and is confirmed in a striking manner by the following microscopical observations very recently made by the celebrated Valentin:—

"It admits, no doubt, that the degeneration of the kidney, described by Bright, stands in direct proportion to the excessive quantity of albumen contained in the urine. It is not, however, yet discovered what may be the cause of this relation. Microscopic research, in remarkable cases, may be able to afford more accurate information on this point. For example, we found on the post-mortem examination of a boy, æt. 13, who, for a long period, had been afflicted with dropsy and œdema, and whose urine sometimes contained albumen in immense quantities, sometimes very little, not only effusion into the chest and abdomen, but remarkable granulation of the kidneys in the fifth stage. Both kidneys were excessively enlarged; their greatest length was 3‴75; their greatest breadth 2‴. This enlargement did not exist in particular spots only, but engaged the whole substance of the kidney, and was smooth and uniform, and similar to the increase of volume assumed by a well-injected organ. Externally were to be seen the solitary ashy-gray specks; internally, tissues, particularly the cortical, were tinged of a deep yellow colour. Microscopic examination showed that, while the stretched tubuli uriniferi of the mamillæ were either empty or filled with a little fluid, the tubes of the cortical substance contained a yellowish gray mass throughout, so as to be rendered, in a certain degree, visible, as if injected. It only required a fine incision, in a clear light, to see in the most distinct manner the beautiful windings of the urinary canals in this state of injection, even in cases of moderate enlargement. The measurement of these, in the cortical substance, in the centre, was about 0.003500 P.ʒ*; in the mamillæ 0.005400 P.ʒ. Nothing abnormal could be perceived in the walls of the canals, nor in the substance placed between them. One kidney was finely injected. The distribution and diameter of the blood-vessels, as well as of the corpora Malpighiana, exhibited no irregularity. The mass which filled the incised canals, of a grayish-yellowish hue, consisted of irregularly granulated bodies of greater or less size, little molecular bodies, and round yellow little spheres. Similar appearances were found in the elongated canals, only in a less degree.

"If I am not much mistaken, this discovery in the kidneys goes far to prove that, in this case, the kidneys are only the receptacles of the diseased urine, and that they, on a cursory glance, have only the appearance of being diseased themselves, whilst, on the other hand, the diseased process of secretion must be sought for, not in the kidneys, but elsewhere; as, for example, in the blood, for it is well known that the urine can be secreted without kidneys."—*Ibid.*

28. *On Erratic Erysipelas.* By Professor Graves.—It is a curious fact that in the majority of cases this disease commences on the bridge or alæ of the nose. It is not of a phlegmonous character, and does not engage the subcutaneous cellular membrane to any extent, except where it is loose, as in the eyelids; it depends on an inflammation of the corium, particularly its external layer, giving rise to heat and tingling pain, with more or less redness and a slight degree of

* The decimal numbers are referred to a Parisian inch, as unity.

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elevation, particularly at the margins, where a kind of ridge points out the line of demarcation between the healthy and diseased skin. It is not in general dangerous, rarely requires any antiphlogistic measures, and almost always spreads according to fixed laws. It is usually symmetrical, and its course is, for the most part, uniform, commencing upon the nose, and spreading gradually over the head, neck and trunk, in a manner which has not, as far as I know, been described by any author. It is comparatively a mild disease, and much less dangerous than another form which attacks the face and head, terminating in extensive subcutaneous suppuration. The latter spreads rapidly, and without any regard to symmetry; it is often accompanied by high fever, headache, and sometimes delirium and coma, and has attracted much attention from surgeons, as being one of the common consequences of wounds of the scalp, in persons of impaired constitution or irregular habits. But the form of erysipelas which we are now considering differs from this in many points. It generally commences on the nose, about the alæ, from which it extends gradually and slowly over the face, temples, sides of the head, nape of the neck, and back. It is not generally attended with violent fever, headache, delirium, or coma, rarely vesicates, and seldom or never ends in suppuration. Setting out from the median line at the nose it spreads over both the malar prominences, descends over the cheek, sometimes leaving the upper lip untouched, and arriving at the edge of the lower jaw, its downward course is arrested, and leaving the fore part of the neck free, it begins to spread in the opposite direction, engaging the eyelids, forehead, and temples. It does not in general attack the upper or under lip, or the tip of the chin, and this, with its sudden arrest at the edge of the lower jaw, gives to the face a very peculiar appearance. In this and similar instances much interest has been excited among you in watching whether the disease, in its descent along the face, would, contrary to my prediction, reach the front of the neck by way of the skin covering the lower jaw; as yet we have not seen it do so, which is a most curious and inexplicable fact. Having spread over the cheeks down to the lower jaw it then changes its direction, quits the median line still more, and proceeding laterally by the temples, ears, traversing the mastoid process, it arrives on the back of the neck. About this period it not unfrequently throws out little detached patches, which appear, as it were, insulated in the vicinity of the main track. Having arrived at the interscapular space it sends off wings on either side towards the shoulder, passing over the latter and under the axilla, and descending along the back generally stops there on the loins. It never spreads equally before and behind, but occupies the back and shoulders in some, while in others it proceeds from the nape to the front of the neck, and thence to the sternum and anterior part of the chest. Occasionally it reaches both arms, but rarely, if ever, goes beyond the insertion of the deltoids; as it advances, its progress, and the extent of surface which it involves, become every day increased, while, at the same time, the redness declines. It extends much more rapidly in the latter direction than along the median line, and generally occupies about a fortnight in its advance. As I have observed before, it does not spread merely by continuity of surface, but often throws out little detached islands, and this is the reason why we cannot arrest this form of erysipelas by means of nitrate of silver. If you draw a line before it with nitrate of silver, it undermines, as it were, your line, and appears on the other side without any apparent retardation of its march. Having gone on in this way for a certain space of time, varying from seven to fourteen or seventeen days, and embracing a larger portion of skin on each successive day, it suddenly ceases, its cessation being in general accompanied by increased secretion from the skin, and abatement of the feverish symptoms. No author has noticed the very remarkable fact that the last day's march of erratic erysipelas is, in some cases, its longest—it is, if I may use the expression, a forced one; it then stops suddenly. But although the extent occupied daily thus increases until the moment the disease terminates, yet, for some days before that event, the parts newly seized are less and less intensely red, and on the last day, during which the greatest progress or *longest march* as to extent is made, the skin is but slightly

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tinged by the erysipelas. In other cases the progress of the erysipelas is different, and, as it approaches the period of its termination, its daily progress exhibits a daily diminution, both in extent and intensity. In a lecture, formerly published, I have spoken of the treatment of this form of erysipelas. Wine and quinine agree well after the first few days from its accession.—*Ibid.*

29. *Case of Chorea—administration of Stramonium and Turpentine—Cure.* By Professor Graves.—There is an extremely interesting case at present in the chronic female ward; I allude to the girl labouring under chorea. Mary M'Donnell, now 16, well made and generally enjoying good health, has had several attacks of chorea. The first commenced seven years ago, and was attributed to fright. It was accompanied by aphonia, and lasted for some weeks. About three years since she was under Dr. Stoke's care, for a similar attack, but without any loss of voice; was leeched over the spine, and dismissed cured, after a seven weeks' stay in the hospital. On her last admission she was found to labour under chorea in an aggravated form, having involuntary motions of almost all the voluntary muscles, including those of the face and tongue, the motions being rather increased at night, and depriving her of sleep. She had no headache or pain in the back; the heart's action was quickened, but normal; the pulse 108; bowels constipated; tongue slightly furred; considerable flatulence. The catamenia appeared about eighteen months ago, and have continued regular. This last circumstance is calculated to diminish, very much, the importance attached by some persons to menstrual irregularity as the cause of chorea. Here the menses were quite regular, and yet the symptoms of chorea were of an extremely aggravated character. Besides, the occurrence of the disease in males, and before the age of puberty in females, is quite sufficient to show that the derangement of the menstrual function cannot be classed among the causes of chorea. In the case of a young lady, whom I attended some time ago, with Dr. Marsh and Mr. Mulock, the recovery was complete, and yet the menses did not appear until five months afterwards. I may observe, too, that in the case of this girl M'Donnell there is no reason to suppose that the disease depends upon subacute or chronic inflammation of the brain or spine. It is essentially a disease of the nervous system, but there are no grounds for inferring that it is connected with inflammatory action. Chorea has been defined as consisting of irregular motions of the voluntary muscles, continued while the patient is awake, interfering with and deranging the efforts of volition. It bears some analogy to paralysis agitans, subsultus, delirium tremens, and similar diseases, but differs as to its cause, the period of life at which it appears, the state of the sensorium, and many other particulars. It generally ceases during the hours of sleep, and in this way the system is enabled to recruit itself when fatigued by long continued muscular action; but in the case of this girl the movements are increased at night, adding greatly to the distress of the patient, by depriving her of rest. The day after her admission she was ordered to take aperient medicine, to have her head shaved, and use the tepid affusion three times a day. Under this treatment some transient relief was experienced; the irregular action of the muscular system ceased for about half an hour after the affusion, but returned again, and the disturbance of sleep remained undiminished. The tepid affusion was tried with great care and perseverance, and totally failed, which is remarkable, when we recollect how extremely efficacious it proved in the case of the young lady before spoken of, and whom it saved from the most imminent danger. This is a proof, if proofs be wanting, of the vanity of hoping that we can find any remedy capable of always producing a given effect on any nervous disease. The patient was now ordered to take thirty drops of the solution of muriate of morphia, twice a day, and this proving ineffectual, the dose was increased to forty drops. This treatment was continued for three days without any benefit; on the contrary, the irregular motions became more violent, and the state of watchfulness unaltered. She was now directed to take, three times a day, a pill containing the sixth of a grain of extract of stramonium, followed by a draught containing a drachm of spirit of turpentine. This was on the ninth; on

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the tenth she is reported to be much improved, and to have slept for some hours during the night. Her pupils, however, were greatly dilated, so that it was thought advisable to discontinue the stramonium for some time. On the twelfth she was able to resume the use of stramonium of which she took four doses in the day, with marked improvement in her symptoms. The spasms were notably diminished, and she was able to enjoy four or five hours' comfortable sleep at night. The effect of the stramonium and turpentine was very striking, and the rapidity with which ease and comfort were induced, in place of inquietude and suffering, excited much surprise among you. I now regret, that in consequence of having given the stramonium and turpentine simultaneously we cannot, with certainty say to which the cure was owing: as the stramonium was also given in the other successful case, it is possible that it may have been the chief instrument of cure in both.

A question arises here, whether we could have effected a cure, in this case, by tonics? I think not; where the nerves of the whole system of voluntary motion are deranged, we cannot expect to derive much good, at least in the commencement, by the use of tonics. The remedies in which we can place most reliance, in such cases are those known to possess the power of controlling spasmodic action. Among them, musk, turpentine, and stramonium hold a very high rank. You are all aware of the benefit derived from musk in the treatment of subsultus; it has been long used for this purpose, and it deserves the reputation which it holds. Turpentine is another remedy of great efficacy in convulsive affections; in epilepsy, in the convulsions of children, and in the subsultus of fever, I have frequently employed it with advantage, and can bear ample testimony to its value; but, as I said before, I think that, in the present instance, the improvement is to be attributed chiefly to the stramonium.—*Ibid.*

30. *Chorea in a man seventy-two years old.*—Professor Graves, states in one of his clinical lectures that he was attending a medical man seventy-two years of age labouring under chorea, of the greatest possible degree of violence.—*Ibid.*

31. *Turpentine in the Treatment of Tænia.*—Professor Graves relates the following curious case in a recent clinical lecture. "A gentleman of my acquaintance who laboured under tape-worm, and had taken a variety of remedies, among others spirit of turpentine in the usual doses, was advised to try a very large dose of the spirit of turpentine. He took three ounces at once, and nearly killed himself; the turpentine produced the most violent irritation of the bowels, hypercatharsis, and intense excitement of the nervous system. He suffered for a long time from the effects of the dose, and to add to his misfortune, it failed of accomplishing the end for which it was taken. About half a year afterwards, while still labouring under symptoms of tape-worm, he was persuaded to try turpentine again in half drachm doses twice a day. He continued this for a considerable time, until the system became, as it were, saturated with the turpentine, and then began to pass portions of tape-worm daily, until the whole came away and he recovered completely. Here, you perceive, small or alterative doses succeeded, where an enormous dose had failed."—*Ibid.*

32. *Hooping-Cough.—The Dublin Journal of Medical Science* for November, 1838, contains an interesting letter from Dr. H. C. Lombard, of Geneva, to Professor Graves, on this disease. Dr. Lombard states that the hooping-cough has been prevalent at Geneva during the past winter and spring, which has afforded him an extensive field for observing this complaint.

The *symptoms*, he states, were the same at Geneva as elsewhere. It "generally began in a slight catarrhal affection, with a short, dry cough, which, instead of becoming less and less, increased from day to day, and after a period of two or three weeks, became quite convulsive. This first uncharacterized period has sometimes lasted six or eight weeks, and sometimes has been totally wanting, so that the patients had in the space of a few days the convulsive cough; but the most general occurrence was a short, dry cough, for two or three

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weeks, and afterwards a regular fit or paroxysm recurring from ten to fifty times a day. The fit or paroxysm was most generally divided into two distinct parts, with an interval, during which the patient could breathe easier, and have a few seconds or minutes of rest. It was generally preceded by a great state of anxiety, which lasted from five minutes to half an hour; the little patients used then to cry, and were very much agitated: older patients used to announce their fit a long time before its appearance, and they were troubled sometimes with a difficulty of breathing and sometimes with nausea. In a young girl aged seven years, the nausea was so intense before the fit, and lasted so long, that the only period of rest which she enjoyed, was that which followed the fit, and even that was of short duration. Sometimes, however, those precursory symptoms used to vanish, and were not constantly followed with a regular fit of hooping-cough; and I have chiefly remarked this favourable result when the patient's attention was directed to some interesting object, or attracted by conversation. The mucus expectorated was generally viscid, whitish, and transparent; sometimes, however, I have found it in the latter period yellowish and even greenish. I have not met with many cases of swelling of the face in the most violent attacks, and I have reason to think that this symptom, which has been considered as constant in the hooping-cough, is by no means a usual attendant of this disease; and the more so, as I have seen during the last winter two cases of simple catarrhal affections in children, who had the swelled appearance of the face which has been considered as characteristic of the hooping-cough. I have often met with profuse hemorrhages from the nose; but they have never been attended with any danger; on the contrary, they seemed to relieve rather than to increase the violence of the symptoms.

"Nausea and vomiting, chiefly the last, were amongst the most constant symptoms observed in my little patients; some of them have seemed for weeks to have thrown up all that they had swallowed, and yet they were not much emaciated; so that I am disposed to think that the very effort of vomiting presses down the pylorus a certain part of the food, and gives an aliment to the absorbents. This supposition appears to me corroborated by what happens in pregnant women, who during many months seem to vomit all they have swallowed, and yet are not much emaciated, at least not so much as they should be, were they to retain no food for the process of nutrition. The tongue has generally been white and furred in most cases, and yet the little patients have generally longed for food, and taken it with great pleasure. The bowels have generally been as regular as they are in children of the same age and constitution."

The average *duration* of the disease, Dr. L. states, was from seven to eight weeks; in some cases it did not exceed three or four weeks, but in others it was protracted to as many months. He has heard of cases which lasted twelve or eighteen months, but doubts the correctness of the fact. He has not found weak or debilitated children more subject to violent fits of the hooping-cough, than strong and healthy boys or girls; and the only cause of an increased cough has been the presence of many patients in the same apartment.

The *progress* of the disease was very irregular. The first period was sometimes entirely wanting, at other times it has been much protracted; the second period, during which the cough had attained its acme, has been often very short, while the period of decrease lasted a long time. In most of his patients, Dr. L. observed a temporary return of the cough, which seemed as violent as at first; but this relapse, though frequent, was never of long duration, and after two or three days, the regular decrease continued its course. The fits of coughing were observed day and night: during the period of increase, the fits were more frequent at night, and during the decrease more frequent during the day. This is explained, in part, by the cough being so violent during the first stage as to awaken the patient from the soundest sleep, while, when the fits are weaker, they do not awaken the patient. It is very likely, also, Dr. L. thinks, that motion, amusement, and the open air, contribute to lessen the cough; while rest, the horizontal posture, and the close air of sleeping-rooms, increase the tendency to the return of convulsive cough.

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Dr. L. did not meet with a single well authenticated case of secondary hooping-cough; and he says that what may have induced some authors to admit its occurrence, is the peculiar prevalence of a convulsive cough amongst adults, during the existence of the hooping-cough.

The only *cause* which Dr. L. admits for the hooping-cough, is its transmission by contagion; the proofs he adduces of this assertion are the following:

"In most families where one child was attacked, all the others followed at a short interval. In the schools the transmission has been rapid and general; and in the town of Geneva we have traced the first cases as having caught the hooping-cough in a neighbouring town, where it had been introduced by a sick child arrived from another country. The only exceptions to the transmission of the hooping-cough to members of the same family, has been observed on infants who were suckled; and it is a popular opinion in the United States, that infants at the breast will not catch the hooping-cough. I was attending, last winter, an American family consisting of five children, who were all attacked with the convulsive cough except the youngest, who was not weaned till the complaint had entirely subsided in the family."

Dr. L. agrees with the best informed practitioners in regarding hooping-cough, without any complication, as not a dangerous complaint. He has never seen a single case of the hooping-cough end in death, unless attended with some other disease. The various forms of complication he has met with are, bronchitis, pneumonia, anasarca, water in the brain, remittent fever, and a disordered state of the bowels.

"The inflammatory state of the bronchia," he observes, "is a frequent complication of the hooping-cough; it is generally attended with a short cough between the fits, and with much fever and agitation; there is generally much uneasiness before and after the fits, and this uneasiness is caused by the difficulty of breathing, and pain felt in the chest. The bronchial inflammation runs easily into pneumonia, and both are frequent complications of the hooping-cough. Most of those cases that terminate in death, are attended with inflammation of the lungs; however this is chiefly to be met with in children who are not properly taken care of; and in the higher ranks of society I have not seen one single instance of this cause of death; indeed, so great is the difference in the mortality of the various ranks of society in consequence of the hooping-cough, that I may fairly assert, that out of ten fatal cases, nine belong to the poorer classes. I have seen this difference in my own practice, which since the last four years has become more respectable, and the consequence has been, that while in 1833 I had lost four patients, in 1838 I have not lost one, though my little patients have been twice or three times more numerous; but they, almost without exception, belonged to the higher classes. Anasarca is one of the frequent complications of the hooping-cough. In most cases there is a slight degree of œdema on the face and arms, but in some more serious occurrences the serous effusion in the cellular tissue and in the cavities extends to such a degree as to cause death. I have not met with such cases in my own practice, but another physician of this town has described to me three cases which have proved fatal, with symptoms exactly similar to those of the dropsy which follows scarlet fever, and in none of the three patients had this complaint been observed, or likely to have taken place.

"Water in the brain is one of the most serious complications of hooping-cough, and it is not a rare one. The cause of hydrocephalus is easily found in the constant trouble of the circulation during the spasmodic fits of cough; the face becomes then purple, the nose bleeds, and all the veins are swelled to such a point that they seem likely to burst; this intermittent stoppage in the brain circulation is a frequent cause of hydrocephalus in children labouring under the hooping-cough. But besides the above mechanical cause, there is also some great disposition to serous effusion of the ventricles which may depend upon the nature of the convulsive cough; this complaint has undoubtedly its seat in the origin of the nerves, and consequently the brain is originally affected; so that it is not to be wondered at if it induces so often the formation of water in the

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brain. The only difference which I have been able to trace between the spontaneous hydrocephalus and that which comes in the course of the hooping-cough, is the different state of the bowels, which are not so costive in the last as in the first. But a greater number of facts is necessary to make it a general rule.

"I have often met, in patients labouring under the hooping-cough, with a continued or remittent fever; it was sometimes attended with shivering, hot skin, and night perspirations, so as to resemble consumption. Sometimes the fever is constant, and lasts for days and weeks. I have seen such cases where it was impossible to find the cause of the continuation of fever. The chest, examined with the greatest care, did not show any inflammation of the lungs or of the heart; the stomach and bowels were in very good order, and after the strictest search, I was obliged to consider this frequency of the pulse and heat of the skin, as caused by some obscure local inflammation. So serious was one of these cases, that it terminated fatally, and unfortunately I could not obtain permission to examine the body.

"The stomach and bowels are generally in good order during the hooping-cough; but in some rare cases, I have met with a loaded tongue, nausea, and loss of appetite, and in such occurrence gentle aperients succeeded in doing away with this complication. Often have I seen diarrhœa, but it has never been of much consequence, though sometimes attended with fever."

Dr. L. gives the following table of the ages of the patients in forty cases in which hooping-cough proved fatal:

Under 6 months,	6	13
From 6 to 12 months,	7	
From 1 to 2 years,		10
From 2 to 3,		6
From 3 to 4,		7
From 4 to 5,		2
From 5 to 6,		2
Above 6,		0
		40

This table the author thinks leads to the very important fact of the danger of the hooping-cough in infants, and the decreasing mortality of this complaint as children grow older. These conclusions seem wholly gratuitous, inasmuch as the number of cases occurring at each age is not furnished, and, therefore, there are no data for determining the relative mortality at different ages. The result, moreover, is at variance with the general observation of English practitioners.

Dr. L.'s observations on the treatment of the complaint, we shall transcribe in full.

"The treatment of hooping-cough has," he observes, "at all times, much occupied the attention of the profession, but so various have been the results of experience, that each practitioner advises a remedy as far superior to the practice followed by others; and so much has this path been followed, that we have now a long list of unfailing specifics which have done wonders in the hands of their inventors. And yet, after all, I come to advise a new treatment for this complaint. I have also my specific, and I give it to the public with as much confidence as any of my predecessors. However, I am not so exclusive as to have tried only one method, and I will give the result of my experience on those which I have followed with care and attention.

"Emetics are rather a matter of course than of choice in infants and children, who, being unable to expectorate, swallow all the mucous formed in the bronchia; it is also necessary to give a certain activity to the expiratory muscles, and in that also emetics are useful. I have given these every day, or every other day, and have always found it as good to unload the chest as an aperient for the bowels. They are also useful as a preparatory measure for some remedies which act better when preceded with emetics. The syrup of ipecacuanha has been used nineteen times out of twenty; when some

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particular reason prevented its administration, I have given the powder of ipecacuanha, or even tartar emetic, which, however, does not agree so well with young children as with adults.

"I have made a great use of assafœtida both internally and externally. Rubbing the spine with the tincture has often been of great service, and a plaster applied on the chest has helped the actions of internal remedies. I have sometimes given assafœtida in pills, but few have been the instances of the children who could swallow this truly named *stercus diaboli*. The flowers of zinc is a very good antispasmodic in hooping-cough: in 1834, I have made great use of it, in the dose of four to twelve grains a day, and I must say that I have often succeeded in making the fits less and less. I have seen complete cures accomplished with that single remedy. In two very young infants who had a convulsive cough, attended with symptoms resembling epilepsy, the oxid of zinc has proved very beneficial, and has stopped the cough and the spasmodic fits. I have never seen any bad consequence from the use of this remedy.

"Opium, in various shapes, has enjoyed at all times a great favour in the treatment of hooping-cough. The chief preparation which I have used is the syrup of white poppy, in the dose of a tea-spoonful once, twice, or three times a day. In some cases, it has taken away the most troublesome symptoms, but without shortening the duration of the disease. In those cases in which it has proved beneficial, it has diminished the number of night fits by making the sleep sounder; but even then it seemed to have little action on those which came during the day.

"I have often given prussic acid, and in cases similar to those in which the opiates were indicated, viz. when there was much irritation, and a great variety of nervous symptoms. I have generally given half a grain, and sometimes as much as one grain of the hydriocyanuret of potash in the twenty-four hours, but I have never dared to give a larger dose of a poison like prussic acid. Employed comparatively on a brother, whose sister was taking the sub-carbonate of iron, this last remedy had a most undoubted advantage.

Belladonna, in extract of powder of the root, has very often succeeded in cases of hooping-cough. I used to give from half a grain to two grains of the root, and in many cases with advantage; however, though the cough was less troublesome and the fits less numerous, yet it seemed more to act as a palliative than as a curative remedy, and in many cases it certainly failed and proved quite inefficacious.

"I come now to my specific, or rather to the remedy advised by Dr. Steymann, as the best anti-spasmodic in hooping-cough. Dr. Steymann had advised to give from four to ten grains of sub-carborate of iron in the twenty-four hours; he gave as a rule to increase one grain for each year, so that a child six years old was to take six grains in the day; but from the beginning I found that dose quite inadequate, and I increased it to twenty-four, and even thirty-six grains in young children. I have given it either with water and syrup or mixed with a cough mixture. It has never produced any inconvenience; on the contrary, I have found that all the children treated after this method were much less weakened, and recovered faster than with all other remedies. The proofs of the advantageous effects of the sub-carbonate of iron have been so numerous that I can scarcely enter into the detail; however, I may give a few facts to corroborate my assertion. In a child, four years old, I gave the sub-carbonate of iron, and the fits which in the preceding week had been 101 in number, were reduced to 66 in the following week. In a weak and debilitated boy, aged seven years, the powder of belladonna had proved quite useless; when I tried the powder of iron, so prompt was the effect, that in a few days the boy was quite cured; the sister of this boy was also cured with great rapidity. A young girl, aged eight years, had eight fits in the day, and after a fortnight they were reduced to two or three very mild fits of cough. A boy, aged six years, having thirty fits of convulsive cough during the day, when he began the sub-carbonate of iron, after one week the daily number was reduced to twenty-one, and in a fortnight to eleven or twelve fits, much less violent than they were before the treatment. One of

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our best apothecaries had tried various remedies on his children, who were labouring under a violent attack of hooping-cough, when I advised him to try the sub-carbonate of iron; the result was far beyond his and my expectations, as after three days the night fits ceased entirely, and those which occurred during the day were reduced to three or four. The last case of hooping-cough which I have treated lately was of four months' duration, and every thing had proved useless, when I gave the iron powders, which in the space of a few days succeeded in making the cough less and less.

"In fact, I think I may assert with security, that the subcarbonate of iron enjoys a remarkable property to make the fits less violent, to diminish their number, and after a certain number of days to cure entirely the hooping-cough. It enjoys, besides, the advantage of strengthening the little patients, and to give them the force to resist a complaint which sometimes lasts some weeks, and generally leaves the patients weak, low, and exhausted. In some of those who have taken it, I have often seen during the first days a temporary increase of the cough, but it always subsided after two or three days, and did not prevent the good effects of the medicament. The good effects obtained by the use of the iron powders are easily explained by its antiperiodic and anti-neuralgic properties, and it shows *a posteriori*, how much the hooping-cough resembles a true neuralgic, or at all events a true nervous disease.

"Before concluding this long letter, I must not omit to mention the remarkable effects of a change of air; indeed, and striking is the fact, that it is now a popular remedy, and many have been the instances which have proved to me that this opinion is founded on a sound observation. In many cases which had baffled all attempts to stop the cough, a change of air has accomplished the cure. I have found it equally indifferent to go out of town or to come into town, provided there is a change; and even at the short distance of half a mile, I have seen the good effects of this plan of treatment. In many cases I have remarked that during the first three or four days the change of air increased the cough, which became afterwards much less, a remark similar to that made after the use of sub-carbonate of iron."

33. *Beneficial Effects of Belladonna in a Case of Puerperal Mania.* By David H. Scott, M. D.—A lady, the mother of four children, was confined of her last in April of the past year. Since her childhood she had been constitutionally nervous, and partaking of an hereditary excitability. About two months previously to the full period of gestation, she began to express a conviction that she should not recover, and, in spite of all persuasion, this increased. But her labour was favourable, and she went on well until the evening of the seventh day, when her husband found her sitting up in bed reciting, with astonishing rapidity and accuracy, several parts of scripture, and hymns, many of which she had learned in her childhood and which had apparently been forgotten by her, as she was never, on any occasion before, known to repeat them, neither could she when requested to do so. She was quite unmanageable, scarcely recognized any person at her bed-side, answered incoherently the questions proposed, dwelt constantly on the idea of death for which she fancied she had been so actively preparing, and though her medical attendant was instantly on the spot, it was with much difficulty he was able to apply his measures. Active purging had a beneficial effect, it relieved the urgency of the symptoms. At this time she was attacked with mammary abscess and had been prohibited nursing the child. Her nights were now sleepless; opium was largely administered to give repose. She became abstracted, and shunned all society; a melancholy, with occasional paroxysms of high excitement, seized her mind; to those whom she dearest loved she showed the strongest dislike, and abandoned herself to despair and to utter ruin, an object unworthy of the compassion of her Creator. Leeches, occasional purgatives, change of scene and air, regulation of the secretions which were greatly vitiated, the shower-bath, were employed with partial and indifferent benefit. But at the end of October there was an evident change, the intervals of active excitement became longer and her manner more

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rational; she began to feel a pleasure in occasional conversation, and the cautious introduction of visitors seemed to draw her attention to other objects than the delusions which haunted her. Dr. Scott now inserted a seton in the nape of the neck. It only rendered her unmanageable and was withdrawn. Thinking that direct action on the nervous system might be serviceable, Dr. Scott combined with perseverance in the use of purgatives, a pill composed of half a grain of extract of belladonna to be taken every night.

The effect of this treatment was highly satisfactory, her nights were visited with refreshing sleep, her skin, which had been parched from the onset of the illness up to this period, became moist, symptom after symptom improved, and, at the end of six weeks, her eye lost its vacuity, her countenance wore a contented and intelligent expression, her mind was calm, collected, and happy, and her feelings so altered, when contrasted, as she expressed it, with her past wretched and dismal state. The belladonna was employed up to the period of her permanent improvement, which was toward the end of December, when, to use the language of her husband, "she was as well as she had ever been during her life."—*Dublin Journal*, July, 1838.

34. *New Method of treating certain Cases of Epistaxis.* By Professor Graves.—It not unfrequently happens that epistaxis constitutes the only ailment to which young persons are liable. I was consulted by two gentlemen within the last year, the one eighteen, the other twenty-eight years of age; they were both healthy in every other respect, and were both liable to bleeding from the nose, sometimes slight, sometimes copious, and then producing a degree of debility proportionate to the extent of the hæmorrhage; no disturbance of the digestive organs, of the heart, or of any viscus or function was discoverable. There seemed to be but one defect in the constitution, scarcely explicable except on the somewhat mechanical hypothesis of a superabundance of blood, accompanied, perhaps, by a defect in the process of sanguification, whereby the blood's fluidity was altered. These ideas, borrowed from the now antiquated humoral pathology, served to indicate the method of treatment; and having no better guide to follow, I proceeded to put the plan thus suggested into execution: I accordingly advised my patients to live as dry as possible, or, in other words, to restrict themselves to a minimum of drink. I directed them at the same time to take about half a drachm of dilute nitric acid daily, in divided doses. Although the reasoning which led to its adoption is scarcely tenable, yet the remarkable success of the treatment renders the result worth recording.

Hippocrates, in his curious and instructive work on diet, insists much on attention being paid to the quantity of drink allowed to patients in different diseases; it is singular, however, that he nowhere speaks of restricting the quantity of drink in cases of hæmorrhage.—*London Medical Gazette*, Nov. 1838.

35. *Dry treatment in Catarrhal Affections.* By Professor Graves.—Dr. Williams has lately recommended the dry treatment in catarrhal affections of the lungs attended with increased secretion. In young persons, when the sputa are abundant and easily gotten up, I can attest the efficacy of an almost total abstinence from drink. Not long ago, I was called to see a young lady then on a visit to the house of the venerable Doctor Perceval; she had been blistered, and had taken large quantities of squills, ipecacuanha, antimonial wine, and other expectorants, and had refrained from solid food, and indulged freely in demulcent ptisans, whey, tea, &c.; these means, with confinement to her room, had been continued about a week without the slightest benefit; the cough was incessant, depriving her altogether of sleep, and accompanied with much wheezing, and an abundant easy expectoration. All remedies were laid aside, an almost total abstinence from drink observed, and a strikingly rapid cure effected. *London Medical Gazette*, November, 1838.

36. *Method of preventing Chilblains.* By Professor Graves.—Many persons,

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especially children, suffer much from chilblains, although this troublesome affection is often met with in the most healthy constitutions; yet, when the disease proceeds to a very great extent and degree of intensity, and occurs with violence, where the exciting cause, exposure to changes of temperature, has not been sudden or remarkable, we may then conclude that the sufferer's diathesis is decidedly scrofulous. This affection ought consequently to excite the attention of parents; for although in general it is merely a local ailment, yet in some children it indicates a general weakness of the constitution, and in all occasions much pain and annoyance. In order to prevent the formation of chilblains, we must endeavour to protect the skin from the operation of the usual exciting cause of the disease, and, in addition to cautioning the children to avoid exposing their hands or feet to rapid transitions from cold to heat, we should endeavour to render the skin capable of bearing moderate changes of temperature with impunity. This is best effected by washing the hands several times a day, at first with tepid and afterwards with cold water, mixed with a small proportion of spirits or of *Eau de Cologne*. Some parents do much injury by making their children wear flannel or woollen gloves, even in the house. Stimulating liquids, such as strong brine, have long been deservedly popular as preventives of chilblains, and were recommended by Dioscorides; but none of those usually employed seem to me as efficacious as one which I was the first to use, viz. a solution of sulphate of copper in water, in the proportion of ten grains to the ounce. This must be diligently applied to affected or suspected parts of the skin with a camel's hair pencil; and as soon as the moisture dries off, the skin should be well smeared over with spermaceti ointment. The sulphate of copper lotion may be applied two or three evenings in succession, until it has produced a manifest effect on the skin; it must be then discontinued for a few nights—again, however, to be resumed as soon as the natural soft and tender texture of the skin seems about to return. You must be careful to enjoin the application of the spermaceti after each use of the lotion. By this simple plan, commenced early in winter, many children, previously martyrs to chilblains, have been completely protected. It is probable that the nitrate of silver would answer equally well, did it not discolour the skin in so unseemly a way.—*Ibid.*

SURGERY.

37. *Artificial anus following a hernia with gangrene; protrusion of a large portion of intestine through the solution of continuity.—Cure by autoplasty.*—The patient was a countryman, aged 52, who for a long period had been afflicted with inguinal hernia of the right side; and who, three years previously to coming under the care of M. Blandin, had suffered from strangulation of the part, which terminated in gangrene. Through the large perforation in the right inguinal region resulting from this, the interior of the cœcum was perceived, its anterior parietes having been destroyed, and from this opening the greater part though not all of the fæces was discharged. During three years the patient remained in this state, a portion of the intestine occasionally protruding through the opening, which he was always able at once to return by repose and compression on the part. In February, 1838, after strong exertions, so large a portion of intestine was pushed out that his own efforts to return it, as well as those of the physician of his village, were unavailing, and he travelled up to Paris for advice.

When first seen by M. Blandin "a reddened tumour of the size of the two fists, covered by mucous membrane, occupied the right inguinal region; vermicular movements were noticed at the surface of this tumour, and a lengthened opening, circumscribed by two lips, and readily known as the ileo-cœcal opening, was observed at its upper internal part. A constant discharge of liquid fæcal matters took place from the opening. No evacuation from the rectum. Considerable emaciation."

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"Attempts to reduce the protruded intestine were at once made, which after being kept up for a long time, and pressure exercised in a continued manner for more than a quarter of an hour, were successful. *All of the ascending colon, the inferior extremity of the ileum, and the part of the cæcum* which had escaped the gangrene, were by this means reduced. After reduction it was ascertained that the opening in the abdominal parietes was nearly circular and sixteen lines in diameter. Compresses of a pyramidal shape, and a *spica* bandage, were applied to prevent a new protrusion."

"By these means the patient was much relieved, the fæces ceasing to pass by the anormal opening, and the intestine being retained by the pressure of the bandage. A truss with a strong spring and a large pad was afterwards applied, in order to produce a more energetic action upon the parts, and the opening was soon observed to contract. Nevertheless, by the month of May it was still as large as a dollar, and as it did not appear susceptible of greater contraction, on account of the loss of substance that had occurred in the abdominal parietes, an operation was thought of for the purpose of closing it. Previous to the performance of this, it was ascertained that the parietes of the cœcum which remained was either wholly deprived of an intermediate ridge, (*éperon*) or had one very slightly projecting, so that *enterotomy* was not applicable to this particular case. The edges of the wound were then pared off, and were united by means of the *quilled suture*, after having taken the precaution to place below them a piece of *fish's air bladder*, in order to hinder the fæces from irritating and preventing the union of the parts."

"This first operation, and a second of the same kind, were unsuccessful, and after a few days the patient was precisely in the same state as previous to their performance. Having thus found that something more than the simple paring off of the edges of the wound and the suture were necessary, autoplasty was resorted to, and applied in the following manner. A quadrilateral flap formed of the skin, and a thick layer of sub-cutaneous cellular tissue was cut below the opening in the groin: three different incisions served to circumscribe it, one of them being a tangent. From the inferior edge of the opening the two others descended perpendicularly to the extremities of the first; the flap was dissected up for the space of near two inches, and left adherent to the inguino-crural region by one of its edges. This first part of the operation accomplished, the skin covering the *superior internal and external* edges of the opening was removed for the space of about three lines, and the flap was then pushed up and its edges put in apposition with the before mentioned parts, placing thus the points of suture beyond the circle of the artificial anus, and covering this latter with the bleeding face of the flap. A piece of linen smeared with cerate, a layer of charpie, compresses, and a truss with a weak spring completed the dressings made use of after the operation. On the fourth day the flap was united with the edges, and with the anterior part of the opening within and without, but the union was not perfect superiorly; nevertheless, it was evident that if the success was not yet complete it would soon be obtained, for the flap kept from this period its position before the anormal opening, so that this latter was reduced to the condition of a narrow cleft, of which the edges could not fail to unite with a facility."

At the end of fifteen days the superior edge of the flap and the corresponding part of the opening were pared off and brought together by means of the twisted suture; this time the union was almost perfect, two little holes only remaining, which completely cicatrised after several cauterisations with the nit. argent. At this time (July) the patient has his artificial anus entirely closed by the flap taken from the groin. Upon pressing upon it the considerable loss of substance that has occurred in the parietes of the abdomen is plainly felt. The parietes are more feeble at this point than elsewhere, and it will be necessary always to give support to it by means of a truss.—*Gazette Medicale*, July 28, 1838.

38. *Arab Fracture Apparatus.*—At the sitting of the Academy of Medicine of Paris, held January 13, 1838, M. Sedillot presented a fracture apparatus which he brought from Constantine, and which he had taken from a Turkish woman,

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whose arm had been fractured by the bursting of a bomb-shell. This apparatus was composed of thirteen "*nervures*" of palm, each one inch wide, two to three lines in thickness, and nine inches long, convex on one surface, plane on the other, and arranged along and secured to a portion of prepared sheepskin; a space of three or four lines being maintained between them. This apparatus was supported upon the members by means of cords of wool loosely applied, but susceptible of constriction by twisting pieces of wood under them until the necessary force is given: in fact, a species of tourniquet. So arranged, this apparatus is perfectly applicable to simple fractures; but, in the case of the poor woman referred to, it was compound, and required dressing: to accomplish this without removing the apparatus, a portion of two of the splints, with the skin which covered them, was removed. Many modifications of this apparatus appear to be in use among the different tribes, and they are all ingenious. Certainly the contrivance which they employ to give to the apparatus the necessary constriction is worthy of remark; for it does not expose the member to any shock, and completely answers the end.—*Brit. & For. Med. Rev.* October, 1838.

39. *Immovable Apparatus for the treatment of Fractures.*—In the No. of the *British and Foreign Medical Review* for October last, there is an excellent account of the Immovable Apparatus for the treatment of Fractures, and a full and able exposition of its supposed advantages. Although we are not prepared to admit to its full extent, the writer's estimate of the value of this method of treatment, we do not doubt its utility in certain cases, and therefore subjoin copious extracts from his paper. "In 1834, M. Seutin, chief surgeon of the Hospital Saint Pierre at Brussels, finding several inconveniences attendant upon the use of the immovable apparatus for fractures, of Dieffenbach and Larrey, he was induced to seek some means by which the principle of those apparatuses might be carried out in a manner more free from objection; and such means was presented to him in *starch*. By means of this article an apparatus was easily procured, and not costly; it acquires considerable solidity, and a tenacity which enables it to resist perfectly external shocks; and, when its removal becomes necessary, it is easily accomplished without the destruction of any portion of the apparatus. From that time he has treated all cases of fracture, not only in the hospital, but in his private practice, by this method, with the most complete success.

"The mode of application of this apparatus is as follows: immediately after the reduction of the fracture, the limb is surrounded by compresses dipped in Goulard water; a common bandage is carefully applied over these, from the root of the toes to the knee, (supposing the leg to be the seat of fracture:) this bandage is then, by means of a brush, covered over with thick starch; then another bandage is applied, beginning at the knee and descending towards the foot: this is covered like the first, to which it adheres, except on either side of the tendo Achillis, where a little padding is applied. Four pieces of thick paste-board are moistened and moulded upon the leg, before, behind, and on either side of the fractured point: these are secured by two other bandages, one passing from the heel to the knee, the other from the knee to the heel, and covered by starch as before. From two to four days occur before the apparatus is perfectly dry; and from this moment the patient may get upon crutches, a support being given to the affected foot by a stirrup around the neck.

"On the 25th of September, 1837, M. Velpeau presented to the Academy of Sciences a memoir in which is discussed the two prevailing systems of treatment. He maintains that, whatever may be the nature of the fracture, whether accompanied by tumefaction or wounds of the integuments, reduction should be immediately proceeded with: this being accomplished, the part is to be surrounded by compresses, and a bandage moderately firmly applied, extending upwards from the points of the fingers or toes to the superior extremity of the fractured limb: the bandage is then to be brushed over with starch, and so on. The compression, being equal and moderate throughout, sustains the tissues, without occasioning the slightest uneasiness; the patient may turn, move, and act in bed as if there were only simple contusion of the leg. He is no longer condemned to

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lie on his back for six weeks or two months; he may get up on the third day; he may, without inconvenience, sit on a raised seat, because the leg may be moderately flexed; he may walk with the assistance of crutches, the foot being sustained by a stirrup around the neck. M. Velpeau submitted to the inspection of the section of surgery, patients who walked on the second, third, fourth, and sixth day after the occurrence of the accident. It is admitted by M. Seutin that the principle upon which his system is framed is a simple, but certainly a successful modification of that of Larrey. It has been employed by him in about two hundred cases, with the greatest success; by Velpeau; by a considerable number of surgeons in France and Belgium; and by ourselves, in cases in every respect confirming the statements made in its favour by the persons to whom we have referred.

"We shall now shortly consider the objections which have been raised against the principle upon which the system is founded; and we shall hold that, at the present moment, the method is most perfectly carried out by the apparatus of M. Seutin.

"The principal objections which have been raised against this method of treating fractures are the following: If complete immobility be so necessary to prevent motion at the fractured point, this, it is objected, is often not attained, because from thirty to sixty hours are required for the complete desiccation of the apparatus, during which time motion may be permitted; and because, if, at the moment of application, the tumefaction be considerable, when that subsides, a large space will be left between the bandage and the limb; and there will be, therefore, no resistance to displacement. The answer which may be given to this objection is, that, when a fracture is reduced, it is not usually in the first two or three days that displacement happens; it is after this period, and when motion, involuntary or indispensable, is daily repeated, and the ordinary bandages have become loosened, that this occurs. Now, although humid, the starch apparatus maintains coaptation during the first three days, with at least as much firmness as the ordinary apparatus; that time passed, the danger of displacement is over; the pieces entering into its composition form a compact, coherent mass, exactly moulded upon the limb, adapting itself to all the inequalities of surface, and forming with it a perfect whole. A displacement, according to the axis or to the circumference of the limb, is completely prevented, because the superior fragment is included in the same mould as the inferior, and both must together be carried in any direction which is given to the limb; for no separate portion or fragment can possess the power of moving without the motion of the whole.

"If we move a lower extremity thus maintained, what happens? If an impulsion is given to the foot, the movement is transmitted to the leg, to the thigh, to the pelvis: no partial movement can occur, but the whole movement must be borne in the direction of the impulsion, and no displacement of the fragments can have place, because all are moved in the same direction at the same moment.

"Already many substitutes for starch have been proposed, with the view of removing the inconveniences with which the apparatus is charged. A composition of starch and alum, glue, pitch, and other substances, have been named. M. Lafargue has just detailed a case in which he employed a mixture of starch with gypsum in fine powder, in which the apparatus was perfectly firm in six hours. M. Velpeau at present employs, with the same view, dextrine.

"With respect to the second point, as to the space which may be left between the bandage and the limb, it usually happens that it is not considerable; it is not produced until after many days; the work of consolidation is then somewhat advanced; the ends are included in a callus which affords a powerful support.

"Supposing the apparatus to be placed on a limb which is much tumefied, and that tumefaction rapidly subsides, so that at the end of a few days a considerable interval is found to exist between the limb and the bandage, the inconvenience may be remedied by firmly applying another bandage. The solidity of the apparatus might be thought an obstacle to the action of the bandage, but experience has shown that the difficulty is not insurmountable.

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"Another objection which has been raised is, that the early application of a bandage, before the development of a coming tumefaction, may produce a strangulating effect. Experience has shown that the fears of gangrene, as a consequence of this pressure, are unfounded. When an ordinary bandage is too tightly drawn at the level of the fractured bone, whilst the lower or more distant portion of the limb is less firmly compressed, tumefaction follows, which, if the constriction be continued, will end in gangrene; but a pressure of an uniform character, extended from the toes or fingers, uninterruptedly, along the member, is opposed to the tumefaction of the parts and to gangrene: in fact, by such pressure, we may procure atrophy of the limb, but not gangrene. Therefore is it important that the compression should be exact and uniform; and, in a large majority of cases, its effects, so far from being injurious, will be found to be decidedly salutary.

"In fact, there are two kinds of compression: the one which is opposed to the reflux of venous blood, (that, for instance, which we establish circularly around the arm when we wish to bleed a patient;) the other, which is opposed to the ingress of arterial blood and favours the egress of venous blood, is that of every agent which compresses a limb equally at all points, and commences by a methodical compression of the portion farthest removed from the trunk. The first determines gangrene when long continued; the second is decidedly opposed to inflammation: the first is as strongly repulsed by the advocates for permanent bandaging as by others; and the second must belong to that method properly employed. Still we would say that, where the tumefaction of the limb is very great, the application of the apparatus should be delayed for some days; not because pressure would exercise any baneful influence, but because, when the tumefaction is dissipated, too great an interval may be left between the limb and the bandage, and because some difficulty might be experienced in determining upon the exactitude of the coaptation.

"Another disadvantage which has been attributed to this method is, that the practitioner is left in the dark as to the state of the limb; that, when once applied, it must there remain up to the moment of consolidation of the fracture; and that, before this period, we cannot ascertain whether there be eschars, abscess, or other similar complications. If only moderate attention be used, none of these accidents need occur: they must produce pain and general symptoms; and nothing can be easier than to remove the bandage. As far as strangulation is concerned, too, the extremities of the fingers or toes, which are uncovered, will always give timely indication of the approach of gangrene.

"Again, it has been said that the bandage may produce excoriation and eschars, in consequence of the unyielding nature of its materials, against which the integuments may rub and become ulcerated. When we consider that the soft parts within the bandage remain perfectly immobile, and that the compression is exercised equally at every point, the apparatus being exactly moulded on eminences and depressions, we shall conclude that the occurrence of such accidents must be extremely unfrequent. Besides, the first layer of starch is on the outside of the bandage, and not in contact with the skin, and, even were it otherwise, the inconvenience might easily be avoided by interposing between the bandage and the limb any substance which, without preventing the necessary compression of the parts, would obviate such an inconvenience.

"Such are the objections which have been urged against the treatment of simple fractures by this method: against the system, as applied to the treatment of fracture with wound of the integument, a more formidable objection has been made. It has been stated that pus is confined, and that the consequences are extremely injurious. The most conclusive answer which can be made to this objection is, that many hundreds of cases have been treated by this method, and that such consequences rarely occur. When the tumefaction is dissipated, and the period of suppuration has set in, the pus is poured out, penetrates the compresses, and gradually the different parts of the apparatus become impregnated with it. Some time is occupied in the production of this effect, and a multitude of facts clearly demonstrate that, beyond this point, suppuration very rarely proceeds. At first the purulent matter occupies the space left vacant by the

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subsidence of the tumefaction, but its force of expansion proceeds no farther; the compressive power of the apparatus restrains it; there is no reflux, and infiltration of the integuments hardly ever takes place. It is, therefore, a new obstacle to the farther pouring out of purulent matter, which soon undergoes many changes; certain fluid portions are absorbed; and, being preserved from contact with atmospheric air, it does not contract those deleterious qualities which, under the influence of this agent, it usually acquires: the other portion extravasated between the integuments and the apparatus, and which pervades the latter, evaporates, leaving a concrete portion, which forms a stratum around the limb, which singularly adds to the solidity of the apparatus.

"Before we proceed further, we will refer to the apparatus of the Arabs; and, certainly, we cannot say less in its favour than that it is a true "immovable" apparatus, of easy application, more simple and effectual than that of Dieffenbach; little less so than that of Seutin.

"Those persons who have no fears with regard to the necessity of providing for the escape of pus, may urge the bad consequences of leaving the wound exposed, and of the less rapid cicatrization; and no doubt the introduction of that principle would be a most important improvement upon the Arab system. Certain it is their apparatus perfectly accomplishes the common indications in treatment; the fragments are maintained motionless, the member is submitted to a uniform compression, variable at will, without shock or disturbance: and, with respect to their arrangement when the fracture is compound, it must be admitted that, when the opportunity of examination is unfrequent, the course they take is the safest.

"We will now contrast, very shortly, the two systems of treating fracture of the lower extremity.

"The method commonly employed in this country requires a confinement to bed, in the same position, for a period varying between three weeks and as many months. If the patient be in robust health at the commencement of this treatment, it is damaged at the end; if he be debilitated, that debility is aggravated; if he be occupied in trade or any occupation requiring his personal attendance, it must suffer in his absence; if he be a traveller, where he falls there he commonly lies, whatever may be the inconvenience: if the fracture be compound, all these evils are aggravated; the patient may be pulled down by profuse suppuration, or his wound may be exposed to all the accidents to which such a surface is liable. There are also other considerations of much importance which belong to the subject: frequent watching is necessary, and this among the poor in rural districts is frequently impracticable. For instance, a man may be surgeon to a large union of parishes under the present administration of the poor-laws: three or four fractures may happen at different points of that union: it is impossible for him to give them all the necessary attention; and, though the fractured bone may unite, it is often at an angle. Under the other system, the necessary apparatus may be found in a cottage; it is of easy application; it is not irksome to the patient; tumefaction, when present, is more speedily dissipated; and, if it be not already developed, is almost constantly restrained; the patient may, under ordinary circumstances, be left with a conviction that all will go on well; and, when the union is accomplished, instead of being reduced, by confinement, to a debilitated condition, the patient is enabled, on the fourth or sixth day, to leave his bed; the tradesman to attend to his ordinary business; the traveller to proceed on his journey without risk; and, if the fracture be compound, the tendency to suppuration is restrained, and the injury rapidly reduced to one of a simple nature."

40. *Treatment of Hydrocele by injections with Iodine.*—In our No. for Nov. 1837, p. 258, we noticed the success of Mr. J. R. MARTIN in the treatment of Hydrocele by injections of a solution of tincture of Iodine. Mr. M. has since communicated to the Medical and Physical Society of Calcutta a report of his subsequent experience—from which it appears, that since the 2d, January, 1835, (the date of his former report) 601 cases of hydrocele have been treated at the Native Hospital, making in all 777 cases since March, 1832. Of those 766 had

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solution of tincture of iodine injected, and retained as formerly described. In order to ascertain whether it was by mere stimulation, or by any specific action that the cure by the tincture of iodine was effected Mr. M. had ten cases treated with a common urethra syringeful of undiluted Port wine, and one with diluted tincture of lyttæ, in the same proportion as that of iodine, viz. two drachms to six of water:—of this two drachms were injected and retained; the pain during twenty-four hours was excessive, Mr. Martin states, and the inflammation, though not proportionate to the pain was much longer in subsiding than when the tincture of iodine solution was used:—this was also remarkably apparent in the cases treated with the undiluted Port wine.

Of all the cases treated (766) Mr. Martin says, only two cases of failure* have as yet presented themselves at the Native Hospital, and one of these had elephantiasis of the leg, with similar thickening of the scrotum, and in him the injection caused no pain; but a second operation wherein the pain was acute succeeded.—*Quarterly Journ. of the Calcutta Med. and Phys. Soc.* Jan. 1837.

41. *Fracture of the Fibula without malposition of the foot.*—Fractures of the lower third of the fibula do not always occasion malposition of the foot. Three cases have been admitted this year into the Hôpital de la Pitié, demonstrative of this fact. The subject of one was a man who fell his own height only. He was immediately deprived of the power to walk, and was taken to la Pitié. He was carefully examined by M. Lisfranc, who was unable to decide whether there was a simple sprain or a fracture of the fibula. The examination was daily repeated with the same result; and it was not until the ninth day that M. Lisfranc ascertained that there really was a fracture of the fibula. There was no displacement and no malposition of the foot.—*Bull. Gen. de Therapeutique.* Aug. 1838.

42. *Fracture of the Thigh-bone—defective union with distortion at the end of six months—subsequent recovery.*—The following case, related by Prof. Syme, in the *Edinburgh Medical and Surgical Journal* for Oct. last, is interesting as showing the length of time after the occurrence of fracture, at which art may sometimes interfere wite advantage; indeed, so long as osseous union is not effected, there is room for beneficial practice.

"John Porteous, aged 27, had his right thigh-bone fractured about a third distance from the lower end of the shaft. He was treated by means of the long splint, under the care of a most intelligent and attentive practitioner, but probably from the difficulty of managing such injuries in close beds and inconvenient houses of country people, osseous union did not take place, and on the 4th of July, nearly six months from the date of the accident, the patient was admitted into the hospital.

"I found the fractured limb nearly two inches shorter than the other. The thigh was swelled and bent outwards, the portions of bone forming an obtuse angle at the seat of injury, and motion was distinctly perceptible between the broken extremities, when they were subjected to force urging them in opposite directions. With very little prospect or hope of success, I resolved to make an attempt for the patient's relief, and with this view applied a cushion of hair over the projecting extremities of the broken bone, then placed over this a wooden splint long enough to extend from beyond the toes up to the false ribs, and secured it firmly to the leg by means of a sheet, which after repeatedly surrounding it, enveloped the limb. The upper end of the splint was then drawn towards the pelvis, and confined to it by a broad belt, passing round both the one and the other.

"In consequence of the force thus exerted the thigh-bone was straightened, and the *limbs became of equal length.* The patient lay very quietly, and at the end of four weeks was relieved from confinement. The thigh-bone then was perfectly straight, and osseous re-union seemed to have been at length effected. The patient now suffers no uneasiness except from stiffness of the knee-joint, conse-

* Two more cases of failure came under the observation of Mr. Twining.

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quent upon the long-continued extension of the limb. This defect, however, has not been increased since he entered the hospital, and, being only partial, will probably soon yield to warm baths and frictions.

43. *Fracture of the Pelvis from a slight fall.*—M. Bouvier related to the Royal Academy of Medicine, at their meeting of 3d July last, an example of this occurring in a man 71 years of age, who, having drunk more than usual, fell from his bed. The patient remained for three weeks unable to walk, and never afterwards walked except on crutches. No fracture could be detected during life, but after his death some months subsequently, there was found a simple but complete fracture of the pelvis across the left ilium, from the ileo-pectineal eminence, through the middle of the acetabulum, to the spine of the ischium. The portions of bone were slightly moveable; the periosteum and adjacent cellular tissue were thickened and indurated in the neighbourhood of the fracture; and below them the bone was eroded and friable in several parts. The bones of the pelvis, with the exception of the alteration which had evidently followed the fracture, did not seem to have lost any of their consistence, so that if it were necessary to admit a fragility of the bones consequent upon old age, the change is probably less in the apparent structure of the osseous tissue, than in some modification of its intimate nature, the cause of which is as yet unknown.—*Bullétin de l'Acad. Roy. de Med.* Aug. 15, 1838.

44. *Dislocation of the Thigh-bone on the Dorsum Ilii.*—Prof. Syme has succeeded in effecting reduction in two cases of this form of luxation, one of nine weeks, and the other of six weeks standing. The first occurred in a man 36 years of age, of strong muscular frame; the second in a woman, 26 years of age, whose muscular system did not offer much resistance. In the first case, the patient, after losing sixteen ounces of blood, was put into the warm bath for an hour, a solution of tart. antim. then given, and the pullies finally applied. In forty minutes, reduction was effected.

In the second case, the patient was placed in a warm bath, and solut. tart. antim. administered; the pullies were then resorted to, and at the end of ten minutes, reduction was effected. In neither, was the extension maintained continuously, but completely relaxed from time to time, in order to fatigue the muscles, and disturb the patient's involuntary efforts to resist the exertions for their relief.—*Edinburgh Med. and Surg. Journ. Oct.* 1838.

45. *Rupture of the axillary artery—diffused aneurism—ligature of the subclavian—amputation at the shoulder-joint—recovery.* The *Edinburgh Medical and Surgical Journal* for October last, contains the following interesting case, communicated by Prof. James Syme. A gentleman, 23 years of age was, on the 23d September, thrown out of his gig upon the road with great violence, and lighted on his left shoulder. "When taken up, he complained of pain and swelling in the arm-pit, and surgical assistance being immediately procured, it was at first thought that the humerus had been dislocated downwards. On more careful examination, it appeared that the bone was in its proper place, and that the hard tumour in the axilla, which had been mistaken for its head, depended on effusion of blood. The patient was kept quiet in bed, with cooling lotions applied to the injured part. For a day or two the swelling increased, extending down the arm, and the side of the body, and attended with discoloration of the skin. A gradual improvement then took place in the uneasy feelings as well as the external appearance. But on the tenth day after the accident, a sensation of gushing was felt in the arm-pit, and the pain and tension suddenly became as great as ever. Leeches were applied, and the case again proceeded favourably for eight days, when another gush took place. Attacks of this kind then became more frequent, and at length occurred almost daily. They were always relieved by leeches, of which about 300 had been applied. Mr. S. found the arm enormously swelled by œdematous effusion, which extended to the points of the fingers. A large fluctuating tumour occupied the axilla, and distended the pectoral muscle. There was no pulse at the wrist, and not the slightest

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movement or sound could be perceived in the swelling. The patient, worn out by pain, loss of blood, want of sleep, low diet, and apprehension, was reduced to a state of extreme weakness.

"In these circumstances it seemed difficult to determine whether there was an axillary aneurism or merely a bloody effusion. The gushing sensation, and absence of pulse at the wrist were in favour of the former view, while the complete absence of pulsation and aneurismal *bruit* in the tumour, from its commencement and during the whole period of its existence, could hardly be accounted for, except by the latter explanation. The case being thus doubtful, and as pressure had not been tried, it did not appear prudent to resort to any operation until the effect of careful bandaging had been ascertained. A flannel roller was accordingly applied from the fingers to the shoulder, and round the chest.

"He derived great comfort from the bandage: the swelling of the arm was considerably reduced: and there had been no return of the gushing sensation.

"He continued in this satisfactory state for three days, but on the morning of the 24th, sent for me on account of severe pain in the most prominent part of the swelling. This corresponded with the hollow of the axilla, and formed a round prominent tumour of a dark-red colour, apparently about to open. The patient was impressed with the idea that matter had formed, and entreated me to make an opening for its escape. Thinking that a small puncture might be made with safety, I introduced the point of a narrow bistoury, and finding that nothing issued, enlarged the wound to the extent of half an inch, when a small clot of blood was squeezed out. Hoping from this, that there was merely a bloody effusion from the smaller arteries or large veins, I placed a piece of lint loosely upon the wound. Four hours afterwards, at 11 A. M. I changed the piece of lint, and a few minutes afterwards observed it wet with arterial blood, a jet of which immediately followed. By means of a pin thrust through the lips of the wound, and a ligature tied round it, I prevented further hemorrhage for the time, and then considered what was to be done, with Sir George Ballingall, and Mr. Dewar of Dunfermline, who happened to be in town. They concurred with me in thinking that the subclavian should be tied without delay, and this, with their assistance, was accordingly done.

"The elevation of the clavicle by the axillary swelling, and the condensation of the cellular substance consequent upon the ecchymosis, of which the discoloration extended from the neck to the hip, rendered the operation more difficult than usual; and the artery not only lay deep, from being on the left side, but was overlapped by the cervical nerves to a greater extent than I recollect of noticing in dissection. These obstacles having been overcome, the artery was exposed, and tied with a single silk ligature. The patient passed the remainder of the day tranquilly, and next day when I saw him in the forenoon seemed to be going on well. But at two o'clock, P. M. two or three ounces of blood escaped from the wound in the axilla, and a compress of lint was then secured over it by means of a spica bandage. At seven next morning, as the bleeding returned to somewhat larger extent, I stuffed the orifice with lint. At eleven A. M. it was thought right to lay open the cavity, turn out all the clots that could be reached, and apply graduated compresses. When the artery was thus exposed, it bled freely, but not with such force as to resist the pressure of the lint. In half an hour afterwards, however, the hemorrhage recurred, and as the temperature of the arm was then distinctly lower than natural, Sir George and I decided that the only remaining resource was amputation at the shoulder-joint.

"Drawing the patient to the edge of his bed, I readily removed the limb, and exposed to view a frightful cavity containing coagulated blood, extending as low down the side as the *latissimus dorsi*, and stretching forwards under the pectoral muscle. The artery appeared to have been torn across, immediately below the origin of the subscapular, through which the blood was flowing in a retrograde course; I tied it—the axillary—and one or two other vessels, scooped out all the clotted blood I could reach, and then stitched the edges of the wound together.

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The patient, for several hours after the operation, threatened to sink under this final act of his trials. He complained of nausea, and was deadly pale; his face was covered with cold perspiration; and his pulse could hardly be felt. Small quantities of wine were given to him frequently, and in the evening he revived; feeling warm and comparatively comfortable; the pulse became firm and could be counted, 160. Next day it was 140; the day following, 120; and so on until it fell to the natural state. In other respects the improvement was equally progressive, and before the end of a week there was no room for anxiety except on account of the ligature above the clavicle. It was longer of separating than usual, but probably lay loose for some time before it came away, owing to the patient's extreme aversion to let it be touched. His recovery was complete both in regard to the wound, and the general health.

"The points in this case most deserving of attention are, 1. the way in which the artery was ruptured; 2. the absence of pulsation and aneurismal *bruit* in the tumour; 3. the inefficacy of tying the arterial trunk at a distance from the rupture and with the intervention of branches; and 4. The success of amputation in very desperate circumstances. Whether pulsation was prevented by the artery being torn entirely across, and whether ligature of the subclavian would have proved effectual if not preceded by puncture of the tumour, are questions which I leave to the consideration of the reader."

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46. *Aneurism of the external Iliac artery—obscurily delaying an operation—mortification of the limb—ligature of the common Iliac, and amputation of the thigh—dissection.*—This interesting case is recorded by Prof. Syme in our respected cotemporary, the *Edinburgh Medical and Surgical Journal* (October, 1838.) The subject of the case was a thin, anxious, unhealthy-looking person, ætat. 31; by occupation a tailor. He stated that three months before Professor Syme's seeing him, he had perceived a beating tumour, the size of a pigeon's egg, in the right groin, which rapidly increased in size. A medical practitioner in the part of the country from which he came, prescribed fomentations, liniments, and poultices, with the view of hastening its progress to a proper state for being opened. As it rapidly increased in size both upwards and downwards, without becoming softer or appearing to approach the surface, leeches and mercurial ointment were next employed, and no benefit being derived from these means, poultices of potatoes were recommended.

"Having carefully examined the tumour, I came to the conclusion that it was an aneurism still within command by tying the common iliac artery, and advised him to go into the hospital. He did so, and in the case which I dictated next day to my clerk, it is stated that 'there is now a large tumour occupying the whole space between the pubes and the crest of the ilium, and extending three inches above a line drawn between these two points, and nearly two below it. The consistence of this tumour is tense and elastic; a very obscure pulsation may be felt at some parts of its extent; and the aneurismal *bruit* is very distinctly heard. The patient complains principally of pain in the knee.'"

Mr. Syme resolved to tie the common iliac artery; but it was resolved by a number of medical gentlemen who had assembled to see the operation, that it would be wrong to operate until the nature of the case became more distinctly manifested.

"After this, the tumour obviously enlarged, and acquired a more irregular nodulated surface—the limb became œdematous. The pain, in the knee too, which had been very severe, seemed now quite intolerable, not only rendering the patient completely sleepless, but inducing him to sit constantly in bed with his head bent forward, almost in contact with his knees; and his complexion, which had been always sallow and unhealthy, assumed more of the greenish-yellow hue attending malignant disease of the cerebriform kind.

"On the 6th June, the leg became cold, and on the 7th pulsation was felt distinctly throughout the tumour. On the 8th, I requested Sir Charles Bell, Sir George Ballingall, and Dr. Campbell, to consider what should be done. The pulsation left no doubt as to the existence of aneurism. But the tumour had

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ascended to within an inch of the umbilicus. And the leg was not only cold, but of a bluish-purple colour from the knee downwards, with some large vesicles on the calf. It was plain that the mortification, if allowed to proceed, must prove fatal in two or three days at most. There was reason to think that room still remained for tying the common iliac; and that if this were done, the process of mortification might be stopped, by amputating the thigh. We therefore resolved that an attempt should still be made to save the patient's life.

"The external incision was between six and seven inches long, extending from a little above the external ring upwards in the direction of Poupart's ligament, but diverging from it with a slight curve inward. The parietes of the abdomen were readily divided, and little difficulty was experienced in turning back the peritoneum from the tumour, which was done cautiously to prevent rupture of the membrane on the one hand, or of the sac on the other. I felt the external iliac artery beating on the upper surface of the tumour, and traced it back until it became free, immediately beyond which the internal iliac came under the finger, and beyond this the common trunk lay quite free. So far the operation, however formidable, had not been attended with much embarrassment. But in proceeding to pass a ligature round the vessel, I found the narrow space which was all that could be gained between the unyielding convex surface of the tumour, and the peritoneum distended by the viscera, and which was nearly equal in depth to the whole length of my hand, rendered the employment of aneurism needles very perplexing and uncertain. Having tried several of different kinds, I at length succeeded in passing one of the simplest form; and then having the parietes of the cavity held carefully aside by iron spatulas, got a view of the ligature, and drew it out by means of a hook. A single firm knot was tied on the vessel, and one end of the thread cut away. The edges of the wound were stitched together.

"In the course of the day, the tumour became smaller and softer. The coldness and discoloration of the limb extended above the knee, and the patient complained of inability to retain anything in his stomach. On the 9th, he was in much the same state, with some tympanitic distention of the abdomen. On the 10th, he was no worse. On the 11th, amputation of the thigh was performed close above the discoloured part of the limb. On the 12th, the patient died.

"On dissection, we found the common iliac firmly tied, exactly at the middle point between its origin and bifurcation, without any inclusion or injury of the neighbouring parts. The vessel contained a clot above and below the obstruction. The peritoneum showed traces of much inflammation, but not general or very extensive. The nodular inequalities of the surface of the tumour depended on the glands of the groin, which were enlarged and elevated by the subjacent swelling. The aneurism was of great extent, occupying the triangular hollow of the thigh, and stretching up into the pelvis, so as to fill the cavity of the *ilium*, and even extend considerably beyond it towards the back. The ramus of the pubes was exposed and rough, and the capsule of the joint was nearly if not completely perforated by absorption.

"The external iliac and its continuation the common femoral artery lay intimately incorporated with the aneurismal sac, but remained quite entire except for about an inch at Poupart's ligament, where the coats of the vessel were deficient to this extent, on its inner or inferior surface."

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47. *Club-foot treated by Operation.*—Dr. Little has recorded in the *Lancet* six cases of club-foot, treated by division of tendo Achillis.

The *first case* was one of congenital talipes varus verus, affecting both limbs. The subject of it was a boy 16 years of age; the whole weight of his body was supported on the ball of the little toe, which was the only part which touched the ground. The patient's progression was, of course, extremely laborious and difficult. On the 11th April, 1837, Dr. L. divided both the Achilles tendons with a sharp-pointed bistoury. This instrument was passed through the skin, one or two fingers breadth above the malleolus internus, with one of its sides turned towards the tendon, the other directed towards the deeper muscles and the

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tibial vessels and nerves: as soon as the point of the knife passed beyond the external edge of the tendon, and had nearly reached the skin of the opposite side, the knife was turned, so as to bring its cutting edge to press against the tendon, which was divided at one stroke in the act of withdrawing the knife. The limb was then secured in a pasteboard splint, so as to prevent motion, and the third day Stromeyer's foot boards were applied and extension commenced; at first very slightly, and the force gradually increased daily. On the 1st Sept. 1837, the patient was able to walk ten or twelve miles without difficulty.—*Lancet*, March 17, 1838.

The *second case* was one of talipes equinus acquisitus of right foot, arising from paralysis of the anterior tibial muscle, in a girl ætat. 14. The point of the foot only touched the ground, the heel being drawn up between two and three inches.

On the 16th August, 1837, the tendo Achillis was divided; on the 19th Stromeyer's foot board was applied, and very slight extension exercised; and on the 15th Nov. the patient was able to walk extremely well.

The *third case* was one of talipes equinus acquisitus verus, converted into talipes varus spurius, through having had to bear the weight of the body. The subject of it, was a boy ætat. 15, who until the age of two years was healthy, when he was attacked with typhus fever, during which he had a fit at night, which left him with his left arm and leg spasmodically contracted. The deformity of the foot has constantly increased up to the present time. With the assistance of a stick he is able with great difficulty to walk.

On the 26th February, Dr. L. divided the tendo Achillis. May 8, Dr. L. reports the patient as without any deformity, and as having often walked with comfort 8 or 10 miles a day.

The *fourth case* was one of talipus equinus acquisitus, from shortening of gastrocnemii, induced by the cicatrisation of extensive abscesses, which had extended in various directions among the muscles on the posterior part of the leg, accompanied by carious bones, particularly of the tibia. The subject of it, a girl 27 years of age, was attacked with some disease in her right leg, accompanied with abscesses, &c., when she was 7 years of age, and which continued for eight years; during which period she was necessarily prevented from walking. The heel, in consequence of this confinement, the superior power of the gastrocnemii, and the contraction of the numerous cicatrices, was drawn up to the utmost possible extent, and the patient was compelled to walk on the extreme point of the sole of the foot. There was no other deformity of the foot. The muscles of the back and outside of the leg were bound down to the bones by eight or ten, or a dozen large indented cicatrices, some of them more than three inches in length. There was a difficulty in dividing the tendo Achillis in this case. "The lowest cicatrice, uniting skin, bones, and tendo Achillis, approached so near to the insertion of the latter, into the os calcis, within an inch of it, and the distance between the anterior surface of the tendon and the back of the ankle-joint, which is occupied in a healthy limb, by yielding cellular tissue, appeared, from the thickening and induration around the tendon, to be filled up by a dense mass of organised lymph, showing that some abscess formerly extended thither. There was also the necessity of keeping sufficiently far from the bursa, at the insertion of the tendo Achillis upon the one hand, and the objection of traversing old cicatrices with the knife on the other." Nevertheless Mr. Little resolved to operate, and on the 7th September, he passed a straight French bistoury into the inside of the limb, "opposite to the part where the tendon was least engaged by the adhesions, as far from the anterior surface of the tendon as was compatible with the safety of the posterior tibial vessels, &c., one side of the knife being directed towards the latter. The cutting edge was then directed outwards, against the tendon, the point being made to describe a quarter or third of a circle, of which the centre was that part of the blade in contact with the external punctures. By this cutting outwards, and circular motion of the point of the knife, nearly all fibro-cartilaginous adhesions, for they were felt by me to be gristly whilst cutting them, between the edge of the knife and the skin, as well as the tendo

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Achillis, were divided, as in the method I usually adopt for cutting the latter only, without any puncture being made in the opposite side of the leg. After the withdrawal of the knife two small remaining portions of fascia, or bands of adhesion, were felt through the integuments to be still unsevered; they were cut by re-introducing the bistoury. There was but one wound, a quarter of an inch in length, which healed immediately by first intention, the wound having been dressed and the limb treated as is described in the preceding cases."

On the sixth day Stromeyer's foot board was applied, without attempting much extension. After a few days the cord of the apparatus was slowly tightened, though with very little amendment. The patient complained of restless nights, and on the eighth day, Dr. L. found, to his disappointment, that the foot was nearly in the same position as before the operation; he was therefore certain that some unusual impediment to the bending of the ankle existed. On the eighteenth day after division of the tendon, when all swelling had subsided, Dr. L. was able to satisfy himself that there was a firm band passing from the os calcis, or from the inferior portion of the divided tendo Achillis, to the lowest cicatrix of the fibula; and he determined to divide this band. This he did after the manner of dividing the tendo Achillis, except that he introduced the knife upon the outside of the limb. The wound healed on the second day; Stromeyer's foot board was then applied, and the same degree of extension which had previously given much pain, was now borne with comparative ease, so that the patient was able to walk about. The heel gradually descended, and fourteen days after the second operation she was able to put the heel and entire sole to the ground; which she had not done for twenty years. The limb gradually improved, and at the date of the report, the patient is represented as being able to walk or dance as if the limb had never been contracted.—*Lancet*, *May* 26, 1838.

Case *fifth* was a lady ætat. 24, with talipes varus acquisitus of right foot. This patient, like the last, had had, nine years ago, numerous abscesses in different parts of back and outside of the leg, with necrosis of tibia and fibula. Several large pieces of bone were removed, and after suffering four years the abscesses healed. The gastrocnemii were, however, contracted, and the heel was drawn up two or three inches. She was placed under a mechanist of repute and an appropriate apparatus applied and continued for five years, without any other benefit than preventing the contraction from increasing.

Aug. 1, Dr. Little divided the tendo Achillis. The next day Dr. L. felt a small string or bridle remaining undivided at the part where he cut the tendon, this he divided by a very minute puncture. The fourth day, cord of apparatus tightened for first time. After this the extension was gradually increased, and in six weeks she was able to walk about in a common shoe, the ankle joint possessing the usual extent of motion.

The *sixth* case was one of talipes varus—the patient an adult. The tendons of the gastrocnemii, tibialis posticus and tibialis anticus were divided, and at the end of seven weeks the patient trod upon the entire sole and heel.

Dr. Little has found in some of his cases the pressure of the apparatus against a prominent part of the limb to cause inflammation and ulceration. This accident he has prevented, or remedied where it has occurred, by interposing between the splint and the part pressed upon, an air cushion.—*Lancet*, June, 2, 1838.

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48. *Luxation of the Thigh of seven and a half months' standing. Fracture of the Femur during efforts of Reduction. Remarks by* M. Malgaigne.—A young man of 17 entered the service of M. Velpeau, at La Charité, in December, 1837, with a luxation upwards and backwards of the thigh of seven and a half months' standing. From a minute examination of his history and symptoms M. Malgaigne judged that the luxation had been primitively incomplete and directly backwards. At the period of examination the dislocation was complete, though the head of the femur was still very distant from the iliac fossa and the ischiatic notch, being at furthest but half an inch from its cavity. M. Malgaigne thinking it still curable, undertook, at the request of M. Velpeau, its reduction. On the

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20th of January, he commenced his operations by suspending a weight of twenty-four pounds to the limb above the malleoli which was gradually increased up to the 28th, the day of operation. At this date, after extension had been kept up for some time, it was suddenly stopped and rotation of the knee carefully resorted to, during which a sudden crack was heard and a fracture of the lower part of the femur found to have been produced. On the 2d of February the following expose of the motives which had induced him to undertake the reduction of so old a luxation was made by M. Malgaigne, which, as containing views at least worthy of consideration, we have translated for the benefit of our readers.

"All surgeons agree in regarding as incurable, luxations which have existed for a certain time, which time is very limited for those of the femur. Of the three celebrated writers who have latterly treated of injuries of the bones, Boyer, Monteggia, and Sir A. Cooper, the first without expressing himself in an absolute manner states it to be very rare for a luxation, even of an orbicular articulation, to be susceptible of reduction at the *end of one month;* the second says *one month and a half;* and Sir A. Cooper, more bold than the others, fixes eight weeks as the period beyond which it is imprudent to attempt the reduction in dislocations of the femur, except in subjects who are not very muscular or those advanced in life.

"These certainly are great authorities; but if, nevertheless, we look into the matter and examine the reasons for these assertions we will be astonished at the looseness and inconsistency of their answers. Boyer thinks that the adhesions contracted by the bone are such that if the parts to which it is thus fixed are moveable, we draw them with it; and in the opposite case that we tear the skin and sometimes even the muscles sooner than obtain the least change of position in the bone.

"Monteggia alleges as objections to trials at reduction, the permanent shortening of the muscles which have adapted themselves to the new position of the bone, and have contracted adhesions which increase daily in force; the contracting or even the obliteration of the opening in the capsule, and lastly, though after a long period, the filling up of the cavity itself. Sir A. Cooper admits also three sorts of difficulties; 1st. The adhesions are such that even after removal of the muscles by dissection the bone cannot be returned to its natural cavity. 2dly. Sometimes the cavity is so filled up with plastic or even bony matter that it can no longer retain the head of the bone. 3dly. The luxated bone may form for itself a new articulating cavity from whence it cannot be removed without fracture. He further signalizes as dangers accompanying attempts made to reduce old luxations, the contusion of the skin, the tearing of muscles, the dragging of the nerves giving rise to paralysis, and finally, even declares that the member then reduced is not more useful than it would have been had it been suffered to remain in its abnormal position. But after this sad picture, how is it, let me ask, that Sir A. Cooper encourages attempts at reduction for luxation of the humerus after three months, while at the same time he forbids our attempting that of the femur after eight weeks? Is it that the adhesions are formed less slowly in the shoulder than in the hip? On the contrary we know that the work of nature, particularly for the bony system, is more rapid in the upper than in the lower part of the body. Is it that the cotyloid cavity is more readily filled with plastic or bony matter? Its depth gives it in this respect an incontestable advantage over the glenoid cavity. Like objections may be brought to the theories of Boyer and Monteggia, who also regard luxations of the shoulder as reducible after a longer period than those of the femur.

"But putting aside reasoning, facts may be brought forward to contradict these bold assertions. I will not here bring forward the reduction made by Guyenot at the end of two years. His observation contained in the Memoires de l'Acadamie de Chirurgie being so strangely written as to make it impossible to affirm whether reduction was accomplished or even whether a luxation really existed. A luxation reduced after two years is also reported by Pfaff; but the short analysis given of it by Richter does not permit us to attach great importance to it. A. Cooper has given a history, derived from Mr. Fornish, of a sailor who having

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fallen at sea had reduced by this fall a luxation of five years standing. Far from serving as proofs, these histories have all need of being themselves proved. But examples exist of luxations of the femur which have been replaced after three months, and we know of authentic cases of luxations of the humerus reduced after five months, seven months, and even one year. The obstacles to the reduction of ancient luxations being the same for all these articulations, we have then a right to conclude that after the lapse of one year, at least, the reduction is possible for all. Such, in effect, is the doctrine I teach; but, at the same time, I make some exceptions to it. Sir A. Cooper makes an exception to his doctrine for emaciated persons and those of lax fibre; but after five or six months the member affected with an unreduced luxation is always atrophied in a greater or less degree as was the case in our patient, and as I have already stated it is not in these cases the muscles, but the adhesions which form the principal obstacle to reduction. It is upon the less rapid formation of these adhesions that Sir A. Cooper has likewise excepted from his law persons advanced in life. I confess, on the contrary, that an age a little advanced, particularly if at the same time nutrition was not active, would lead me to fear a fracture of the bone. I do not stop then on account of the youth, nor on account of the muscular vigour of patients. The two obstacles, which for different reasons appear to me to merit most our attention, are: where the luxation has given rise to violent inflammation in the surrounding parts; if this inflammation has moderated afterwards, it is still necessary to be cautious in trials at reduction, for fear of reproducing it. If it has determined suppuration, the ravages are too great and the bands of inodular tissue too powerful to allow of hope for a favourable result, and I abstain from all attempts. I believe too that we should refrain from attempting reduction in a lymphatic subject or where the luxation has kept up a permanent engorgement however slight. But above all I make a vast difference between luxations accompanied with partial rupture of the capsular ligament and such as have it completely divided. I have proclaimed elsewhere and annually demonstrate in my lectures, that primitive luxations of the femur are generally incomplete, a condition of great importance for the reduction when they are recent and still more so when they are of long standing. At the hip, the incomplete luxation is essentially accompanied with an incomplete rent in the capsule and it is the portion remaining uninjured which retains the head of the femur upon the cotyloidien border. Complete primitive luxations, of which I have found some examples with undeniable proof by autopsy, produce almost always complete and entire separation of the capsule. See now what must follow this state of things. In incomplete luxations if the patient retains his limb motionless, the head of the bone will remain on the edge of its cavity; or if he makes use of his limb he will place it a greater or less distance from it, and there will occur what existed in our patient, a true consecutive luxation, not by muscular action, but by the weight of the body, a cause absolutely necessary, and which I have been the first to make known, of consecutive luxations. But in this last case even the portion of the capsule remaining untouched stretches itself little by little and is not destroyed; the membrane lining it will continue to secrete synovia in the whole extent passed over by the head of the bone; from the new situation which it occupies to its old cavity there will be a free passage constantly lubricated by synovia, and only a little strictured, when the head of the bone is distant, by the surrounding tissues and by bands of new formation around the neck. Look on the contrary at the case of a complete primitive luxation with entire separation of the capsule, the luxated bone becomes surrounded first with effused blood which afterwards gives place to coagulable lymph; adhesions, at first cellular, and ultimately fibrous, will on all sides envelope the head and neck of the bone and separate it completely from its natural cavity. In the first case we have a free and moistened passage from the head of the bone to its cavity; in the second, a complete and solid partition between the two. You will now foresee what different obstacles are presented to reduction in these different states. For my part I would hesitate to attempt the reduction of a luxation of the femur primitively complete at the end of two months, while I have

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without hesitation undertaken to reduce a complete consecutive luxation of seven months and a half. I dwell much upon this distinction, for it determines the prognosis and rational practice not only in luxations of the femur but in almost all others. When M. Sédillot reduced a luxated humerus of more than a year's standing, he had to treat a sub-acromial luxation with incomplete rupture of the capsule: when afterwards he attempted at the clinic of M. Lisfranc, to reduce a luxation of the humerus much less ancient, he failed, and I had predicted that he would fail, the luxation being sub-scapular and the capsule being consequently completely ruptured.

"Matters being thus, and the conditions of *reducibility* established, there still remains a difficulty to resolve. Why in the trials made up to this time in cases of old luxations have so few been reduced, and why when these trials have been successful have the accidents signalized by Sir A. Cooper been met with? I answer that in attempting luxations indiscriminately we must meet with some at least which are really irreducible and for all the others the want of success and the accidents are essentially the consequence of the methods adopted. In all the history of our art you will not find a single surgeon vary his mode of procedure for recent or ancient luxations. Good or bad, the same method is applied to all; and, nevertheless, the most enlightened surgeons acknowledge that in recent cases the obstacle to reduction arises from muscular resistance, while in old cases it is from adhesions. Now, in order to elongate the muscles, the secret consists in pulling parallel to their axis without interfering with a more or less favourable position for the member. In order to break up adhesions when they are firm, on the contrary, to pull above parallel to their axis is a bad method as by it we scarce do more than extend them and cannot break them up by a force much above that which the muscles would support. Take for example the natural ligaments, in drawing them parallel to their axis you will finally stretch them but you cannot rupture them except by tearing off the member itself. How then is it, it may be asked, that they are ruptured so easily in luxations? It is because they are not attacked but in a partial manner; stretched on one side only, stretched in a curvilinear direction by the head of the bone, and finally because the luxated bone acts upon them as a lever of the first kind. Applying these observations to artificial ligaments which it is necessary to break up in order to disengage luxated bones, I have established a general method which consists in making use of the displaced bone as of a lever of the first kind, acting in an analogous manner to the movements impressed upon it when the luxation was produced. Chance has sometimes led surgeons to employ this method; it is thus that for scapulo-humeral luxations the methods with the heel, the ladder and the ambe of Hippocrates, make the humerus act as a lever of the first kind. For recent luxations these certainly are not the best methods, but for old luxations I know of nothing superior or even equal to the ambe of Hippocrates. I comprehend how, with their tractions more or less parallel, surgeons may have succeeded in breaking up adhesions, yet feeble, such as they are for example after eight or ten weeks; it is too at this period that they generally cease to be successful; but when the adhesions are stronger they have almost uniformly failed. I have tried comparatively the efficacy of the two methods in two cases of old luxation of the elbow backwards, the one being of seventy days' standing, the other of three months and twenty-one days. The first occurred in a woman 22 years of age, treated by MM. Lisfranc, Marjolin, and myself; after extension with the aid of pullies kept up in the direction of the axis of the limb the fore arm was flexed by main force and in pulling upon it in this position the reduction was effected. The other existed in a boy aged 11, reduced by M. Lisfranc and myself at La Pitié; extension in the direction of the axis of the limb and afterwards upon the fore arm flexed was altogether useless. I then pointed out a mode of procedure which assimilates to the general method, that is to say, that M. Lisfranc, seizing with one hand the upper part of the arm and the wrist with the other and placing the knee upon the olecranon, caused the ulna to act as a lever of the first kind, and in a few seconds broke up all the bands and replaced the bone; success as much more difficult to obtain as there had been a fracture cured with deformity of the portion of the humerus in contact with the radius, which hindered this last bone from

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being as perfectly reduced as the ulna. M. Roux has stated at the academy of sciences that the reduction of as old luxations of the elbow was not very rare; for my part I do not know of other examples. I have the history of a man aged about 30, who entered the Hôtel Dieu, in 1836, for a luxation of the same kind of three months and nineteen days' standing, in whom a fracture of the olecranon occurred during efforts made by M. Roux to reduce it by the ordinary method." *Gazette des Hôpitaux*, Fevrier 15, 1838. G. W. N.

49. *Laceration of the Perineum in Women.* By Prof. Dieffenbach.—Laceration of the perineum, commonly the effect of difficult or ill-managed labour, does not generally fall under the notice of the surgeon, unless the injury be extensive, and the inconvenience produced by it great. When the laceration is small, nature is, in most cases, able to effect a cure; and even where the whole length of the perineum has been torn through, the orifice of the rectum usually remains intact. I have already, in another work, communicated the result of my experience in the treatment of extensive lacerations of the perineum; the following observations are, therefore, to be considered merely as a supplement to the information then conveyed to the profession. The most recent cases of laceration of the perineum, which have fallen under my notice, are the following:—

Case 1.—The perineum of a young woman, 26 years of age, pregnant for the first time, and in whom the genital organs were remarkably small, was lacerated to the extent of an inch. I saw the patient six hours after the occurrence of the accident, and having removed the coagulated blood and lymph by which the edges of the wound were covered, I brought the latter together by three sutures. The parts were frequently bathed with warm water, and then some lint, moistened with the lead lotion, applied. On the third day I removed the two common sutures, and on the fourth, the twisted one. The union was perfect. The continued use of the Goulard's lotion removed, in a few days, some inflammatory tumefaction of the labia.

Case 2.—Laceration of the perineum, to the extent of an inch and a half, occurred in a female, 30 years of age, while giving birth to her third child. I saw the patient ten hours after delivery; the wound was clean, and its lips filled with firm coagula. I applied four sutures; two common, two twisted. The dressings were the same as those employed in the preceding case. On the third day the edges of the wound appeared united, as far as the commissure. I now removed the anterior suture and allowed the rest to remain until the fifth day. Up to the eighth day the knees were bound together with a handkerchief. The union now appeared to be solid, and the conformation of the external genital organs was not, in the slightest degree, modified.

Case 3.—A young woman, 22 years of age, fell from a height of a few feet, and struck the perineum against the edge of a stool. On examination, the genital organs were found considerably swollen, the vagina full of coagulated blood, and the left side of the perineum lacerated to the extent of half an inch. Two twisted sutures were immediately applied, and the antiphlogistic method of treatment had recourse to. The inflammation was thus quickly subdued, and the sutures removed on the fourth and fifth days: the cure was complete. An œdematous tumefaction of the surrounding parts, which persisted for several weeks, was removed by the use of Goulard's lotion.

Case 4.—A young married woman, 24 years of age, fell upon a porcelain chamber utensil, which broke into several fragments and wounded the perineum in various directions. Both labia were divided in different places, and one wound extended backwards for about the length of an inch, through the middle of the perineum. There were also several deep, long wounds in the parietes of the vagina, from which I extracted some fragments of porcelain. The patient had lost a considerable quantity of blood, and lay in a state of complete syncope. After having cleaned the wound and the vagina with injections of cold water, I applied a number of sutures at the different points which seemed to require them. The parts were covered with lint moistened in a cold lotion; leeches were applied to the inflamed organs, and a strict regimen enjoined. The whole

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of the wounds were quickly united, with the exception of one small one, which suppurated, but finally healed in a few weeks. The patient, since then, has given birth to several children, and the cicatrices have remained perfect, not one having given way during labour.

Case 5.—A female, 30 years of age, suffered under incipient prolapsus of the uterus. The genital organs were remarkably relaxed and large, but the perineum, on the contrary, very small. It was, however, impossible to determine whether the enlargement of the entrance of the vagina and the narrowness of the perineum were the consequences of a trifling laceration, or of simple dilatation. I immediately determined on having recourse to Fricke's operation, and after having divided, with the scissors, the posterior angle of the fourchette, I applied eight sutures, partly twisted, partly common. In addition to these, I placed a couple of fine ligatures inside the vagina, through the edges of the mucous membrane. The operation was attended with complete success. After removing the sutures the breadth of the perineum was found to be considerably increased, and the orifice of the vagina contracted within reasonable bounds.

Case 6.—Laceration of the perineum, of a portion of the vagina, and several inches of the rectum, occurred in the person of a female 26 years of age, during her first labour. Six or eight hours after the accident, I was called in, and commenced by closing the wound in the wall of the vagina with five or six sutures. I then treated the rectum in the same manner, and finally closed the lacerated wound of the perineum, partly with common, partly with twisted sutures. The parts were constantly cleaned with lotions and baths, but the obesity of the patient prevented the local treatment from being followed up in as efficacious a manner as was desirable. When the sutures came away the greater part of the perineal wound was found to be ununited, but a portion, near the anus, had healed. In this case the application of the suture was only partially followed by success; the patient, however, was able to retain both fluid stools and flatus.

Case 7.—The next case was a still more difficult one, although the result was more fortunate. It occurred in the person of a woman 40 years of age; during a difficult labour, the perineum, half the vagina, and an inch and a half of the rectum were lacerated. I visited the patient on the following day, and immediately judged that the case would be one of extreme difficulty, for I had seldom seen a more corpulent woman. The abdomen hung down over the middle of the thighs, and the labia were of enormous dimensions. Having placed the patient in a convenient posture and removed the coagula of blood, &c., I first brought together the edges of the wound in the rectum with four points of suture, and then applied a strong suture to the lacerated portion of the vagina, bringing the extremities out through the vulva; complete coaptation of the wound in the vaginal parietes was obtained by four other sutures of lesser dimensions; finally, the wound in the perineum was united by two common sutures, and two twisted ones. The tumefaction of the parts prevented me from making any examination on the following day, and we were compelled to confine ourselves to the simple use of warm fomentations and injections. Several of the sutures which had been placed on the perineum and vagina had begun to cut through the tissues on the third and fourth days, and were all removed on the sixth day. The anterior part of the perineum, as well as the lower portion of the vaginal wound, were now found to be ununited, and the latter communicated through a small opening with the rectum. The parts were frequently washed with a strong decoction of chamomile flowers, and the process of granulation thus encouraged. After the lapse of a few weeks, the opening between the vagina and rectum was closed, and the whole of the lacerated parts in the perineum were united, with the exception of a small slit at the anterior part.

Case 8.—In the following case, several obstacles impeded the operation and diminished the chances of cure: A woman of nervous temperament and feeble constitution, twelve years anteriorly, while giving birth to her first child, met with a very severe accident, a considerable portion of the vagina, the whole of the perineum, and two inches of the rectum, having been torn through. On examining the unfortunate woman, I found the genital organs and the rectum united by a large open slit, and it was scarcely possible to determine at what

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point the perineum had formerly existed. I operated, in this case, in the manner which I commonly adopt under similar circumstances. I freed the rectum a little laterally, in order to conserve its proper diameter, then refreshed all the edges of the injured parts, and united the rectum with five, the vagina with six, and the perineum with four sutures. The parts now presented a pretty natural appearance, and as no tension existed, I did not think it necessary to have recourse to the lateral incisions. Inflammation set in moderately. Goulard's lotion was applied to the parts, which were frequently examined. The sutures appeared firm on the third and fourth day; they were, however, removed, with the greatest caution, on the following day, and the union appeared perfect. After the lapse of a few days, during the first evacuation from the bowels, a communication between the rectum and vagina was discovered. For several months, the edges were touched with caustics, but without any great benefit; the patient was unwilling to submit to any further operation.

Case 9.—A healthy woman, 36 years of age, had the misfortune to listen to the instances of a young man, by whom she became pregnant. She was herself small in person; the pelvis and genital organs were also small, while the child was remarkably large. During delivery, the perineum and genital organs were injured to a very remarkable extent. I was called to see the woman on the following morning, and found her bathed in blood. The vagina and rectum formed one large cavity, the edges of which were ragged. A large flap, three and a half inches long, and two broad, hung down from the external genital organs, and on examination was found to belong to the vagina, to which it was only connected by a band of tissue not broader than an inch. After consultation with the physician in attendance, it was determined that some effort to relieve the unfortunate woman should be made, although the case appeared to be a very hopeless one. I commenced by bringing together the sides of the lacerated rectum, and for this six sutures were necessary; the wounds of the vagina required no less than ten sutures, and for the perineum five were employed. It is unnecessary to mention that one end of each ligature was cut off close to the knot. Although I did not expect to obtain anything like a complete cure in this case, yet I hoped, at least, to render the woman's life less uncomfortable. The treatment was moderately antiphlogistic; the wounded parts were frequently washed with warm Goulard's lotion, and, contrary to our expectations, the injured parts healed so completely by the first intention, that, after the removal of the numerous sutures, nothing could be observed but a fine cicatrix. A small communication between the rectum and vagina, healed after a lapse of eight days, on touching the edges with caustic. Several physicians have examined this case since the cure, for the obtaining which I am much indebted to the assiduity and talent of my assistant, Dr. Hildebrandt.

"I have described the above cases as briefly as possible, omitting every circumstance which was not strictly essential. It should, however, be mentioned that I took care to produce constipation for the first six, eight, or ten days, by small doses of opium. Whenever the desire to go to stool became excessive, a large tube, open at one end, was passed into the rectum, and a quantity of warm water thrown up, by which the scybalæ were softened. The catheter was also introduced several times within the twenty-four hours."—*Lancet*, from *Berlin Med. Zeit.*, December 27, 1837.

50. *Opiate Lotions in Phlebitis.*—M. Pasquier, Chief Surgeon of the "*Invalids*," has employed with advantage, opiate lotions in five cases of inflammation of the internal saphena vein, arising from varicose and atonic ulcers in the course of this vessel, and occurring in debilitated old men. The saphena in all these cases was highly inflamed in its whole course. After general bleeding and repeated applications of leeches, rendered necessary by the violence of the inflammation, M. P. had recourse to opiate lotions, made by dissolving one drachm of gummy extract of opium in two pints of a strong decoction of marsh mallows and poppy heads. Long compresses well dipt in this liquid, and laid on the limb over the inflamed vein, and the whole covered with gummed cloth.

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Every half or three-quarters of an hour, this cloth was carefully raised, and the compresses wet again.—*Bulletin Gen. de Thérapeutique*, June, 1838.

51. *Aneurism of the arteria innominata and origin of the right Subclavian artery—ligature of common Carotid and Subclavian arteries.*—In our No. for February, 1837, p. 522, we gave the details of a case of aneurism of the arteria innominata and origin of the right subclavian, in which a ligature had been placed on the right common carotid artery by S. W. Fearn, Esq.

Two years after this operation the patient came again under the care of Mr. Fearn. It appears that since the operation she has suffered repeated attacks of bronchitic inflammation, which appears to have been induced partly by the pressure of some remaining tumour, and partly by repeated exposures to cold and the irregular life she has led. The following was the condition of the patient when she came the second time under Mr. Fearn's charge.

"She has a somewhat troublesome wheezy cough, which teazes her most in the day-time. She can sleep with her head low, most of the night, with coughing. Her breathing becomes short and her cough is increased, if she walks fast or exerts herself violently in any way. Her pulse yesterday was 110; to-day she is a little more feverish from her cold, and her pulse is 120. It preserves the same indistinctness in the arteries of the right arm, as when she was last under my care. In the left arm the pulsations are of ordinary strength. When she is quiescent there is no appearance of tumour in the site of the former swelling, but by pressing the fingers forcibly behind the sternum or the sternal end of the clavicle, a pulsation is felt, and on applying the stethoscope in this situation a double sound, as of the heart, is heard, and if she is directed to hold her breath, a *bruit de soufflet* is also slightly audible. When the instrument is applied over the subclavian artery in the supra-clavicular space, the *bruit* is found to be loud and distinct, and as far as can be made out, appears to arise from an obstruction to the flow of blood where the artery arrives at the inner edge of the scalenus. The *bruit* is likewise audible, though it is much less loud and distinct, beneath the clavicle. We were not able to *feel* any pulsation in the artery, as it passes over the first rib, but by pressure upon it in that situation, the pulse at the wrist was stopped, showing that the pulsation in the radial artery does not depend upon mere collateral circulation, but that the chief source of supply is through the subclavian. During the efforts of coughing there is a considerable, undefined, bulging swell, which forces forwards the lower attachments of the sterno-cleido-mastoideus. It appears, however, that this is not any arterial tumour but the apex of the lung. She is ordered to abstain from meat, and to take an antimonial mixture every four hours.

"29. Her pulse has come down to 100; she experiences but slight distress in her breathing, though her cough is still troublesome.

"Aug. 2. I have this day performed the operation of placing a ligature on the subclavian artery, as it passes over the first rib. I should probably have hesitated in adopting this step, though I had a very strong feeling with regard to it myself, had I not been sanctioned in it by others whose opinion I consider entitled to every consideration. I have the high authority of Mr. Wardrop, in his work on aneurism, and I have his more direct sanction expressed by letter, in reply to a statement with which, at his request, I furnished him; besides which, Mr. Jordan and other surgeons in Manchester, and some of my most esteemed medical friends in Derby, have encouraged me in the hope that this last proceeding may prove final and successful. The operation was performed at one o'clock, in the presence of a number of medical practitioners, and its steps were pretty much as follows:—I made an incision about three inches in length, immediately above, and in a line with the clavicle, extending from the anterior margin of the trapezius to the posterior border of the sterno-cleido-mastoideus muscle; having frequently divided the integument, platysma, myoides, and superficial fascia, I proceeded to separate the fatty substance filling up the supra-clavicular space, with the forceps and a blunt director. The outer edge of the scalenus was pretty easily reached, and after separating still further the

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surrounding cellular attachments of the vessel, I was enabled to pass a ligature around it. The artery was very satisfactorily insulated, and the patient lost scarcely an ounce of blood during the operation, which lasted exactly fifteen minutes. One suture was employed, and a few strips of adhesive plaster and a wet pad having been placed over the wound, she was put to bed. The pulse in the left arm, immediately after the operation, was 100; there was not the slightest perceptible pulsation in the right arm. She complains of pain in the right axilla and wrist.

"At midnight there was no increase in the frequency of the pulse; she has slept about three-quarters of an hour. Ordered to take a purging draught, and small doses of nitre and tartar emetic every four hours.

"3. Has slept at intervals during the night; is free from pain, and thinks herself altogether better than before the operation. There is no heat about the wound; pulse 100. The right arm has maintained its natural heat. Bowels open four times. To be kept very quiet, and to have nothing but a little gruel or tea.

"*Evening.* Still going on very favourably. Bowels open several times. *Bruit* gone.

"4. Slept from ten last night till four this morning, since which time her cough has been troublesome, and she is now rather feverish; pulse 104; bowels not moved since last night. To take a purging draught directly, and afterwards an antimonial mixture in repeated doses; to sip a little simple oxymel with laudanum, when the cough teazes.

"*Night.* The draught has acted twice; cough better; progressing favourably.

"5. Has passed an excellent night; makes no complaint; pulse 95; bowels open. To continue.

"*Night.* Dressed the wound, which has united very nicely by the first intention. I made a careful examination with the stethoscope both above and below the clavicle, but there is no *bruit* or arterial sound of any kind, and there is no perceptible pulsation even behind the lower attachments of the mastoid muscle. —Contin. mixture; a purgative draught if necessary.

"6. Complains of uneasiness in the arm; in other respects the same as yesterday; pulse 94.

"12. The patient has continued steadily to improve since the last report. She has not taken any medicine for four or five days, with the exception of an occasional purging dose. She says she does not now experience any difficulty in her breathing, that she coughs a time or two in the course of the day, but that in the night she is entirely free from it; indeed there seems to be nothing at all amiss with her. The pulse in the left arm is of the natural strength, and beats 70 in the minute. In the right radial artery *I think* I can perceive the slightest return of pulsation: it is, however, doubtful. She has no pain or uneasiness in the limb, and in fact I may say she is entirely free from complaint of any kind. The lungs are throughout permeable, and the respiration is free from abnormal sound. The same may be said of the circulation. There is no *bruit* either above the collar-bone, or elsewhere, and the sounds of the heart are natural."

The ligature came way on the 15th day after the operation, and in a few days more the wound healed.

At the date of the last report, upwards of five weeks after the operation, it is stated that the patient has now "lost the sensation of a *something sticking in h r throat*, which formerly teased her so much, and which she referred to about the situation of the bifurcation of the windpipe, and though she coughs occasionally, she can walk almost any distance without producing the slightest difficulty in her breathing. Her pulse keeps at about 70; her appetite is good; she sleeps well at night; and indeed she makes no complaint of any kind."

"I need not say," observes Mr. F., "that the result thus obtained, is highly gratifying to me, and I doubt not it will be looked upon with interest by the profession at large, the more especially as it is the first instance in which the *double* operation has been performed for the cure of an aneurism of the innominata; and it appears to me that were proof wanted, this case is decisive of the

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question whether disease so situated is to be considered beyond the reach of surgical art. I make this observation because I am aware that there are some surgeons of the most deserved reputation and eminence, who are still, as I think, prejudiced against the distal operation for the cure of aneurism; and though it may be very true that ligature of an artery on the proximal side of the disease is the preferable proceeding, when the case clearly admits of it, it seems equally true that it is the duty of the surgeon, in cases similar to the one under consideration, to urge the adoption of the only means left to save the life of the sufferer. I cannot, therefore, agree with Mr. Liston in the observations he makes on this subject in his excellent work on Surgery, where he says that though a surgeon might be justified, at the solicitation of his patient, in performing the distal operation, he would by no means recommend him to *advise* it.

"As far as our experience at present goes, it is clearly advisable in a *fair* case of aneurism of the innominata, where the disease is not too far advanced, and where it is uncomplicated with other disease, in the first instance to place a ligature on either the carotid or subclavian vessel as may seem best, and, supposing the cure be not accomplished, to tie the remaining artery, as in my case.

"In the case of Scattergood, I entertain but little doubt that a permanent cure would have been effected by the first operation, had she not exposed herself to every sort of excitement likely to prevent such a result; as it was there can be no question her life was saved by it, and I should therefore not hesitate, were a similar case to come under my care, to adopt the course I have pursued in this instance."—*Lancet, 25th Aug. and 22d Sept.* 1838.

OPTHALMOLOGY.

52. *Amaurosis from tumour in cerebellum pressing on corpora quadrigemina.*—Dr. G. Kerrison has recorded, in the *London Medical Gazette*, for Sept. last, an interesting example of this. A man æt. 66, of temperate habits, had for three years been gradually losing his sight, and for two months had suffered from pain in occipital region. When seen by Dr. Kerrison, April 23, he had complete amaurosis, with dilated and insensible pupil on the right side, and very indistinct vision (almost amounting to amaurosis) in the left eye. There was much dulness, and at the same time anxiety, in his countenance; his mind was much confused; his answers sometimes rambling; and his utterance slow and heavy. His hearing and all his other senses were perfect. Under an antiphlogistic treatment with counter-irritation to the back of the neck, his general health improved; but on the 8th May he had a fit, and a second one on the 3d of June; on the 18th June he became comatose, and died the afternoon of that day.

On examination, behind the third ventricle, and pressing on the corpora quadrigemina, and also partially on the cerebellum, there was a tumour the size of a walnut, of a cartilaginous nature, but which in some parts was soft and easily broken up. It was partly surrounded by a softish substance, having some points of bloody infiltration. This extended for some distance into the left hemisphere, on which side there was also about ʒiss of an amber-coloured gelatinous effusion lying over the choroid plexus, and in the posterior corner of the lateral ventricle.

53. *Operation performed in Persia for the removal of opacity of the cornea.*—S. M. Griffiths, Esq. states that in Tehran, Persia, an operation is practised for the cure of opacity of the cornea, which is said to be frequently successful in improving the transparency of the cornea, if not always capable of restoring perfect vision. The object of this operation seems to be, to completely cut off the vascular communication, by excision of a circular portion of the conjunctiva at a small distance from the margin of the cornea, which is accomplished by fixing eight small hooks into the conjunctiva, about a line from the union of the cornea with the sclerotica, quite round the cornea; the operator then raises that part of the conjunctiva by pulling these hooks towards him, and with a pair of

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scissors he cuts off the portion thus raised, and completely insulates the conjunctiva covering the cornea, the consequence of which is the gradual absorption of the opacity of the part affected, and the cornea recovers its transparency. The after-treatment is very simple, consisting merely in the introduction of a small quantity of antimony between the lids; in fact the result of the operation is confidently expected to be successful without any other application.—*Transactions of the Med. and Phys. Soc. of Calcutta*, vol. viii. Pt. 1.

MIDWIFERY.

54. *Expulsion of a Fœtus after the interment of the Mother.*—A case of this is recorded by Messrs. Dunn and Saville, in the *Edinburgh Medical and Surgical Journal*, for October last. A woman aged 39, died in labour, 18th July, after suffering severe and ineffectual pains for 48 hours. She was buried the next day, but in consequence of reports that she was not properly treated, the body was disinterred three weeks and four days afterwards. The attending physician stated that the os uteri was during labour so rigid and studded with tubercles, that he never could introduce, more than one finger into the cervix. The patient suffered from repeated uterine hemorrhages for some time previous to enduring labour.

On examination a child of near eight months growth was found lying on the mother's thighs, the head downwards, and one foot and the funis still connected with the vagina. Two large ulcers were observed in the neck of the uterus, and in the back of the vagina, the neck was perfectly relaxed, the placenta still attached to the fundus uteri, but the uterus loose and not contracted on it—indeed presenting a cavity nearly large enough for the fœtus, which had been expelled. The nurse was positive of the fœtus having been in the uterus seven hours after death.

It may be asked how is it that a child which was expelled after the death of the mother could not be removed during her life. Mr. Dunn thinks that this was owing to the resistance of the *os uteri* and cervix being overcome, 1st, by the relaxation occasioned by the act of dissolution, and 2dly, by the collapse of the cauliflower excrescences, which seem to have been rigid and swollen during life, but were totally gone on the necroscopic inspection; and *secondly*, by the distension of the parietes of the abdomen from the gas evolved during decomposition, the *os* and *cervix* reacting upon the most yielding parts, which were now the *os* and *cervix uteri*, and thus, by their common elasticity, expelling the child. The collapsed and flaccid state of the *uterus*, the very relaxed *cervix* and mouth, the distended abdomen, all concur in supporting this view.

Dr. Maizier, in a dissertation published at Berlin in 1835, has collected forty-three cases in which the fœtus has been expelled from the womb after the death of the mother; in one only had the woman been interred.

55. *Extra-Uterine fœtation—Gastrotomy—Cure.*—On the 15th of September, 1837, Dr. Swanck, of Hamburgh, was called on to attend a female, who had experienced labour pains for the last three days; on examination he discovered an extra-uterine pregnancy. Gastrotomy was performed on the following day; an incision, five inches in length, was made along the linea alba, and the chorion exposed, which presented a tendinous appearance; the membranes were now divided, and the fœtus brought into view, but the incision was found to be too small to admit of its extraction; the opening of the abdominal parietes was, therefore, enlarged by half an inch, when the fœtus was removed without difficulty; in a few moments more the placenta presented between the edges of the wound, and was also extracted. The wound was united by five sutures, and after a lapse of three weeks the woman was perfectly well. The child also survived, and at the time of the publication of this case was a strong healthy boy.—*Lancet*, September, 1838, from *Caspar's Woch. and Archives de Méd.*, June, 1838.

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56. *Resuscitation of Still-born Children.*—The following remarks on this subject, by J. Toogood, Esq., published in a recent No. of the *Lancet*, (Aug. 25,) though not possessing much novelty, we have thought worth transferring to our pages, inasmuch as they tend to encourage practitioners to continue their efforts for the resuscitation of asphyxiated infants, by showing that success may be often obtained under very discouraging circumstances.

"Cases of apparently still-born infants are very common. The attempts to restore life are frequently ill-directed, and not calculated to promote the object. It will be found that a very large proportion of children, apparently dead born, may be resuscitated, if proper means be resorted to and persevered in for a sufficient length of time; but the modes generally employed to restore life, such as immersing the infant in warm water, friction, and pouring stimulants down the throat, are not at all calculated to produce the effect intended, and if these means do not succeed after a short trial, all further attempts are generally abandoned. The plan I always adopt, which has never failed where the child was living during birth, is very simple, and only requires perseverance. The following cases, under circumstances by no means favourable, which have been selected from a great many more, will prove the success of the practice recommended.

"Grace White, a very weakly woman, far advanced in consumption, was seized, in the morning, with uterine hæmorrhage, which continued slightly till the evening, when I saw her, and, whilst standing by her bed-side, the flooding increased with such violence, that I thought it best to deliver her instantly; the child was still-born. As soon as I had removed it from the mother, and seen her safe from any immediate danger, I placed a napkin over the child's mouth, and inflated its lungs from my mouth, pressing out the air from the chest afterwards, and thus imitating natural respiration. After having continued this process for thirty-five minutes, the child made a very slight attempt to breathe, and the face became slightly suffused; by persevering ten minutes longer, the free action of the lungs was established, and the child cried lustily.

"The next case was that of a poor woman, named Sarah Holmes, of the parish of Spaxton, who had been in labour a long time, with a presentation of the arm, and, as it was her first confinement, it became very difficult to turn the child, particularly as she was advanced in age, and the parts were very rigid. The child was still-born; but, by pursuing the same plan actively for three quarters of an hour, animation was perfectly restored.

"The next was a case of presentation of the funis, and as the labour was slow, the child was still-born, but recovered by the same means in half an hour.

"The last case with which I shall trouble you, was such as to discourage the attempt at resuscitation under any circumstances; it was a case of twins, and the second child presented with the head, before which a considerable portion of the funis had descended. The delivery was extremely slow, from the general weakness of the woman, who had been for a long time in a bad state of health, and the child was born, apparently, quite dead. As the mother's situation was extremely critical, more than half an hour had elapsed before I could attend to the child, and, on inquiring, I found it had been wrapped in a cloth and placed on a chair in another room. I immediately made the attempt to restore it, and, by persevering steadily for twenty-five minutes, I had the satisfaction to see symptoms of returning life; and, in about fifteen minutes more, the child breathed freely.

"Every thing in this last case was unfavourable to the restoration of the child; the mother's long-continued disease; the circumstance of her having two children, and more particularly the delay which took place before any attempt was made, during which time the child was exposed in a room without fire, in the winter, with a partial and very slight covering. I am warranted, by my own experience, in recommending the attempt to restore all still-born children who have been alive during the birth; and if the means of resuscitation, above mentioned, be actively employed, and steadily persevered in, I believe the majority of cases will be successful. In all cases the restoration of a child is a most

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satisfactory circumstance, and, in some instances, of the greatest possible consequence. I have never found anything necessary but the regular inflation of the lungs, which I do with my own mouth in the way I have described, and have generally observed the first symptom of returning life to be a tremulous motion of the respiratory organs; the child next makes a feeble attempt to inspire, and the colour of the face changes. The inflation should then be made quicker, and as the attempts to breathe increase, sal volatile, or brandy, rubbed over the palm of the hand, and held over the mouth during the inflation of air, will materially assist the recovery, and has a better effect than pouring stimulants into the stomach. A few smart slaps on the gluteal muscles will now generally complete the recovery.

"It has always been my practice to expire as completely, and immediately to inhale as much air as possible, and this should be repeated frequently during the process of inflating the lungs."

MEDICAL JURISPRUDENCE AND TOXICOLOGY.

57. *The Blood is not always black in Asphyxia by Charcoal.*—The black colour of the blood is generally pointed out as one of the most constant characteristic phenomena of asphyxia from charcoal. It would appear, however, from the researches of M. Olivier, that instead of being black, the blood which flows from the vessels in cases of asphyxia produced by charcoal, is sometimes red. This physician, in making a judicial examination in 1837, of a number of bodies of individuals asphyxiated by charcoal, found, the blood red in five cases. What M. Olivier has seen in the dead body, M. Marye has observed during life in several subjects incompletely asphyxiated by charcoal. In one case, the phenomena of asphyxia had existed several hours, and were so intense that there was imminent danger of death. In this state, a vein was opened in the arm, and the blood which flowed was manifestly red, and promptly coagulated. In a second subject, in the highest degree of asphyxia, the blood which was drawn from the arm was equally red. In a third case of asphyxia, of brief duration, the blood was red and promptly coagulated. Finally, in two others, where the asphyxia had reached its last stage, for one of the individuals died two hours after having been bled, the blood which flowed from the vein was red, and coagulated promptly.

These facts show that, in post-mortem examinations, a red colour of the blood should not be considered as demonstrating the impossibility of death having been occasioned by asphyxia from charcoal.—*Bulletin Gén. de Thérap.* August, 1838.

58. *Poisoning by Arsenious acid cured by Tritoxide of Iron.*—An example of this is recorded by John Murray, M. D., in our esteemed cotemporary the *Quarterly Journal of the Calcutta Medical and Physical Society*, (Dec. 1837.) The subject of the case was an hospital apprentice, ætat. 22, who swallowed, with the intention of committing suicide, about fifteen grains of white arsenic, at nine A. M. of the 19th May, 1837. At ten o'clock, vomiting and purging came on. When seen by Dr. Murray at eleven o'clock, he was much depressed, pulse 100, weak. Three grains of tart. antim. were given, which caused free vomiting; he was bled 16 ounces; and repeated mucilaginous draughts given, until some of the tritoxide of iron was prepared.

One, P. M. Acute pain in epigastrium, extending over abdomen; efforts to vomit; tenesmus. Half an ounce of the tritoxide of iron was given every hour, with mucilaginous drinks. At four, P. M., twenty leeches were placed to epigastrium, which relieved the pain in the epigastrium. A dose of oil was given at seven, P. M., and the tritoxide continued at longer intervals. Eleven, P. M., one copious stool; pain in abdomen, acute on pressure; slight cramps in

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the legs, pulse 48; skin cold. The tritoxide to be given every hour; epigastrium was blistered by nitrate of silver, and an enema administered.

20th. Has slept a little; had one dark brown stool, no vomiting; pain in abdomen relieved; thirsty; pulse 80; tongue furred; skin warm. Ol. Ricin. ℥j. Effervescing draught p. r. n. The three following days he had several black stools; he gradually improved, and on the 24th May he returned to his duty.

—

59. *On the Poisonous effects of Rue, and on its Influence on the Uterus.*—"It would seem that the various means deemed capable of inducing abortion are not equally made use of in all countries alike; each country appearing to follow some particular practice in preference to any other. In Paris the puncture of the membranes is generally resorted to; and it is truly disgraceful to think that not only many midwives, but even some medical men, lend themselves to this flagitious practice. I lately saw a melancholy case of a young woman, who died of *metro-peritonitis* in the Hôtel Dieu of Paris, from a deep penetrating wound of the uterus, induced by the use of a trocar for the purpose of bringing on miscarriage.

"In other parts of France the use of rue and of savine leaves, in various preparations, is chiefly trusted to as provocatives of abortion. At present we shall confine our remarks to the former of these two plants.

"There has been much difference of opinion as to the medicinal effects of rue; some alleging that it exerts a direct and immediate action on the uterine system, while others contend that, whenever it seems to do so, this action is only secondary to, and consequent upon, an irritation of the intestinal canal and a disturbance of the nervous system; and hence that its use much oftener fails in provoking miscarriage than succeeds.

"To determine the question, Dr. Hélie, the author of the present observations, reports several cases. One of these is as follows:

"A young female, having suffered a great deal in her first accouchement, was resolved to try some means to bring on abortion in her second pregnancy. She applied to Dr. Hélie for the purpose, being about four months advanced; but he very properly declined giving her any advice, but that of dissuading her from her intentions. She told him, however, that, if he would not prescribe for her, she would apply to some other person. A fortnight afterwards, she returned to him; and then she was no longer pregnant. She mentioned to him that, by the advice of a woman, she had taken three fresh roots of rue, cut them in pieces, and then boiled them in a pound and a half of water down to three small cupfuls, which she drank one evening on going to bed. Dreadful pain in the stomach came on, accompanied with vomitings, and with such universal oppression, that she thought she was dying.

"This state continued all the night, and next day the symptoms were much abated. But now she began to experience colicky pains, slight at first, but gradually increasing in severity, and returning at intervals. On the evening of the second day, they became much more violent, and were evidently the pains of labour: abortion came on soon afterwards—in forty-eight hours after taking the decoction of rue."

"*Case* 2.—A young woman, residing in a farm-house, was suddedly seized with most severe vomiting, violent twisting pains in the abdomen and limbs, restlessness, and tendency to delirium. She had all the appearance of being intoxicated.

"Dr. Hélie suspected that the illness was the effect of medicines, which had been taken with the view of provoking abortion: the patient seemed to be in the seventh month of pregnancy, although she positively denied it.

"He therefore contented himself by withdrawing certain drinks which she had been using, and by confining her to simple barley-water.

"The vomitings speedily ceased; but the abdominal pains continued to increase, and in the course of the following day, she was delivered of two infants.

"Alarming symptoms of poisoning came on afterwards; but these for-

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tunately subsided by degrees, and the girl ultimately regained her health. She afterwards admitted that she had made use of a strong decoction of rue leaves."

"*Case* 3.—A girl, in the fourth month of pregnancy, took for several days a strong dose of the fresh juice expressed from rue leaves. Vomiting, severe colic, great prostration, and tendency to syncope, somnolence, delirium and coldness of the whole surface came on. There was also, as in the preceding case, an inflammatory swelling of the tongue, accompanied with a profuse salivation. The expulsion of the fœtus did not happen till the sixth day after the swallowing of the poison. The acrid-narcotic effects did not cease altogether for another week.

"From the particulars of these cases, we may reasonably conclude that rue, in powerful doses, has decided narcotic irritant effects. Its action in diminishing the force and frequency of the heart's movements appears to be as marked as that of digitalis: in some cases, under its influence, the pulse has fallen to thirty beats in the minute.

"Its peculiar action on the tongue, inducing an active inflammation of this organ, deserves notice.

"Dr. Hélie is of opinion that it also has a direct and *elective* action on the uterus, and that therefore it may be regarded as a provocative of miscarriage, quite independently of its irritant and narcotic effects on other parts of the body.

"If such be the case, we may reasonably expect that the use of rue will be serviceable in many cases of amenorrhœa. The fresh plant is very much more powerful than the dried one: indeed we should never trust to any preparation of the latter. The expressed juice of the fresh leaves is the most active form in which it can be taken; and, after it, a decoction of the fresh plant."—*Med. Chirurg. Rev.* from *Annales d'Hygiène.*

MEDICAL STATISTICS.

60. *On the Relative Frequency of Pulmonary Consumption and Diseases of the Heart.* The *Journal of the Statistical Society of London*, for July last, contains a paper on this subject by Dr. John Clendinning which we conceive to be so interesting that we shall transfer the greater portion of it to our pages.

"The first topic that offers itself for observation," says Dr. C. "is the relative frequency of morbus cordis, or the disease of the heart as compared with phthisis, or pulmonary consumption, and other grave diseases of a character sufficiently defined for numerical comparison.

"The facts adduced in the following statement are drawn from the results of above 500 autopsies made within a limited period. Of these about half were cases included in the class *varia*, or diseases of various classes and kinds, exclusive of pulmonary consumption and disease of the heart. Of the remainder, between 70 and 80 above puberty were cases of consumption, of which two-thirds were males—and the rest were cases of disease of the heart, of which likewise two-thirds were adult males. The number, then, of cases in which the heart was more or less diseased, occurring in a total of 520 to 530 inspections, was 170 to 180, or about 33 per cent.; and if we deduct from the total number of autopsies the cases of persons under puberty, or 15 years of age, amongst whom but two or three cases of diseased heart were observed, we shall then have, as the ratio of disease of the heart to the whole number, about 35 per cent. Unquestionably such a ratio is enormous, exceeding by far the calculation of those most disposed to estimate highly the mortality attributable to the heart; yet I have myself but little doubt that, with some explanation, the following table, which contains the facts relating to phthisis and disease of the heart to which I refer, arranged according to age and sex, will be found less extravagant than it may, perhaps, at first appear:—

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A Statement of the Number of Cases examined between the ages of 15 *and* 100, *distinguishing the ratio which cases of Pulmonary Consumption* (*Phthisis*) *and Disease of the Heart* (*Morbus Cordis*) *bore to the whole number.*

AGES.	MALES.						FEMALES.					
	Number of Cases.				Per-Centage Proportion of		Number of Cases.				Per-Centage Proportion of	
	Pulmonary Consumption.	Disease of the Heart.	Other.	Total.	Pulmonary Consumption.	Disease of the Heart.	Pulmonary Consumption.	Disease of the Heart.	Other.	Total.	Pulmonary Consumption.	Disease of the Heart.
15 to 30	11	5	8	24	45·	21·	8	5	20	33	24·	15·
30 " 50	19	24	24	67	28·	36·	8	8	31	47	17·	17·
50 " 70	17	34	33	84	20·	40·5	9	16	30	55	16·4	29·
70 " 100	3	1	15	31	10·	42·	2	13	24	39	5·	33·3
Total.	50	76	80	206	24.2	36·9	27	42	105	174	15·5	24·1

"The principal explanatory remark I think it necessary to offer is this: my principal field of observation receives all poor applicants from a certain district, provided only their complaints are severe, making no distinction as to sex, age, or disease, except small-pox, nor between curable and incurable cases; and, in general, entertaining all the latter until the end of life, unless the sufferers voluntarily withdraw. The effect of this system of admission is that, compared with other asyla of sickness, the parochial infirmary, so governed, has, according to well-known laws of mortality, an annual loss of life much exceeding that of county infirmaries and city hospitals—a mortality, it is to be remembered, that is augmented very considerably by accessions of cases dismissed from other charities as incurable. For the effect of this comparatively indiscriminate admission and unlimited retention of patients, of course a large allowance must be made. What the exact amount of that allowance should be I am not prepared to say; but if it be assumed at the immense proportion of 50 per cent. of the fatal adult cases, which, I am quite sure, is much over the mark, we shall still have a ratio of heart disease for which perhaps few persons will be prepared.

"The extravagance of the ratio will probably appear still greater when we compare the amount of cases of phthisis with that of morbus cordis. Phthisis, or chronic pulmonary disease, is, and has long been held by pathologists and medical statists, to be by far the more frequent of the fatal diseases of these and all other temperate climes. The accomplished Dr. Young, writing in 1815, attributed to phthisis, as Heberden, Woolcombe, Wells, &c. had previously done, full 25 per cent. of the whole mortality of England. He begins his remarkable work on consumptive diseases thus:—'Consumption is, in almost all civilized countries, the most extensively and inevitably fatal of diseases;' and elsewhere (page 41) he says, 'the frequency of consumption in Great Britain is usually such that it carries off about one-fourth of its inhabitants; at Paris the mortality of consumption has been estimated at one-fifth, and at Vienna it is said to be one-sixth, of the whole. But the mortalities at Paris and in the South of France, from consumption, have frequently amounted to one-fourth of the whole.' Seven years previously to the publication of Dr. Young's work, Dr. Woolcombe, of Plymouth, calculated that the annual mortality in England, from consumption alone, amounted at that time to 55,000 persons (Remarks, &c., page 73); and Sir James Clark's estimate is apparently higher than Dr. Young's, being, for the 121 years ending with 1821, as follows:—

For the Year 1700	The Deaths from Consumption were to all the Deaths of the Year .	·145
1700 to 1750	" "	·214
1750 " 1801	" "	·263

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1801 " 1811	"	"	·288
1811 " 1821	"	"	·316
General average for the 121 Years . . .			·245 or 1 in 4

And he adds, 'It now appears (1835) to constitute one-third of the whole mortality.'

"The difference between my own conclusions and those of the distinguished authors just referred to—conclusions in which they are supported by the principal recent writers on the subject, as Benoiston de Chateauneuf, Lombard, &c.—will seem the more wide and irreconcileable, for this reason: Drs. Woolcombe and Young, as is well known, wrote at a time when the name of phthisis, or pulmonary consumption, was extended to other pulmonary affections besides that to which it has been limited by Sir J. Clark, Dr. Lombard, and others, who have written upon the subject, since the appearance of Laennec's great work; so that, if before 1819 tubercular consumption was the cause of but part of the 20 per cent. of popular mortality attributed, justly enough, to chronic pectoral, and mostly pulmonary disorders, then on that supposition the proportion of deaths referrable to pulmonary consumptions in the old and looser sense is now much increased, since the present mortality from true phthisis in the stricter sense of Laennec, is held by the high authorities above-named to amount to 1 in 5, or thereabout; being the same percentage of mortality as was previously attributed to several chronic pectoral affections, of which true phthisis constituted but one, though no doubt the principal, species.

"Now the doctrine maintained by Young is true, although for practical purposes, perhaps, obsolete. In addition to the facts advanced by that very learned writer, in support of his opinion, others concur in the same conclusion—amongst the rest this unpublished observation of my own. Between May 1821 and May 1835 there have been recorded in the Journals of the Mary-le-bone Infirmary, under 18 principal heads of disease, 3753 deaths, exclusive of about 640 deaths from minor causes. Of the total, amounting to nearly 4400 deaths, 991 (viz. 542 males, and 449 females) were deaths from phthisis, (and mostly in the larger sense of the word, as used by Dr. Young) which gives a per centage of 22½ on the whole mortality of the fourteen years. This observation fully bears out Dr. Young's estimate, as well as those of Drs. Wells, Woolcombe, and Heberden, and other English estimates anterior to 1819. But the limitation of the term phthisis, by Laennec, to tubular phthisis, on account of its greater fatality, and more extensive distribution as compared with other chronic and strictly pulmonary diseases, while it has narrowed the field and rendered more precise the objects, has at the same time made more difficult the means of inquiry. And at the present time it is difficult to place confidence in any results not obtained by diagnosticians of unusual skill during life, or by careful *post-mortem* examinations by practised pathologists: so that, admitting the general correctness of Woolcombe, Young, &c., I am much less disposed to coincide in the views of the medical statists who have written subsequently to the general promulgation of the discoveries of Avenbrugger and Laennec in the great work of the latter. There is, in truth, much reason, and with the highest respect for the very able and distinguished writers above named I say it, to suspect the data on which their calculations are founded. How small a proportion, in fact, of the mortality included in those estimates has arisen from disorders proved strictly phthisical, or even pulmonary, by competent diagnosticians during life, or by proper inspection *post-mortem*. For my part, I have no doubt at all that the greater part of the so-called pulmonary consumptions in persons above 30 years of age has been, in reality, mere chronic catarrh, complicated with disease of the heart, and emphysema of the lungs. But whatever may be thought on that point, as a general position, it is very certain that the proportion of morbus cordis included in the 520 and odd cases here referred to, much exceeds that of phthisis. The cases of heart disease amounted to 170 (to speak in round num-

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bers,) and those of phthisis to less than half, or about 80. Now this difference has not been caused by any selection at admission, or at the time of *post-mortem* inspection. Every proper case was admitted on application, and every case that proved fatal, and for which permission could be obtained, was examined without distinction of disease. That it was not mere accident seems probable from the fact, that in the case of either sex the preponderance was in favour of heart disease. In the case of the males, the ratio of phthisis to morbus cordis was :: 2 : 3; and in that of the females it was nearly :: 6 : 7. I confess it seems to me more probable that the difference between the generally received proportion of disease of the heart to other diseases, especially phthisis, and that obtained by myself, is owing to this: viz., that on the one side, the diagnosis has been, in a large proportion of cases, conjectural during life, while after death no sufficient examination has been made; and that on the other side, the diagnosis has been always based on anatomical as well as instrumental examination. This, I say, seems more probable than that the result at which I have arrived, with the aid of unusual facilities and precautions, should be so far wide of the truth as to represent a disease that really amounted to one-fifth of the whole fatal disease of the country, as one half less frequent, even in a single district, than another disease of supposed comparatively rare occurrence. Whatever also, it is to be noticed, may be the effect of indiscriminate admission and protracted residence, it is common to both diseases, so far as my observations are concerned, and cannot be supposed to affect the ratio: so that on the whole, when I recollect the numerous diagnostic errors into which I have myself fallen in pectoral diseases, and those which I have known committed by other practitioners, and call to mind the difficulty, in general, of accurate diagnosis in the same class of disorders; remembering also the recency of the promulgation of the invaluable mechanical diagnosis of Avenbrugger and Laennec, and the confusion not yet sufficiently remedied of several distinct diseases being classed under the one name of *consumption*, or *decay*, and its synonymes: viz.—

"1. Chronic bronchitis, concurring in scrofulous and cachectic subjects, with loss of flesh and some fever—

"2. Chronic cough, complicated with, and rendered inveterate by hypertrophy of the bronchial ramifications and dilatation of the air-cells—

"3. The same, complicated with, and rendered incurable by morbus cordis; generally on the left side, sometimes on both sides of that organ—

"4. True phthisis, which is always complicated with bronchitis, and pretty frequently with considerable hypertrophy of the heart—

"5. Glandular marasmus in children, without, in many cases, any strictly pulmonic disease;—

When I recollect those facts, I cannot avoid feeling very sceptical as to the alleged paramount importance of true phthisis, and suspecting that in male adults, at least, the most frequent of all fatal chronic disorders of these islands is disease of the heart. In this, perhaps rash assertion, I have the satisfaction of finding that I go but one step in advance of one of the ablest practitioners, and largest and least fanciful observers, that have especially studied the pathology of the heart. Baron Corvisart affirms without hesitation, that the most frequent organic diseases, except pulmonary consumption, are those of the heart; and that death from cardiac lesion is much less rare than from lesion of either the brain, the stomach, the liver, the spleen, or the kidneys, or, perhaps, from the diseases of all those parts together.

"Before passing on to the next topic I would dwell a moment on a remarkable contrast between morbus cordis and phthisis, in their relations to age, which is apparent in the table, and which is both curious in itself, and pertinent enough to my present argument. If, on the male side of the table, we compare the distribution of morbus cordis with that of phthisis, we find a striking contrast. The per centage proportion of morbus cordis to the total number of cases, including phthisis and morbus cordis, at each interval of age, is as follows:—for the first, from 15 to 30, it is 21 per cent.; for the second, it is 36; for the third, it is 40½; and for the fourth, it is full 42 per cent. Whereas for phthisis the

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distribution changes in an inverse manner, being for the first age 45 per cent.; for the second, 28; for the third, 20; and for the fourth, 10 per cent. only; not more than one-fourth of what it was before 30. Then, on the female side, we have results agreeing sufficiently with those just stated on the male to render it probable that there is something more than chance in the matter. On the female side we obtain the following facts:—morbus cordis gives for the ages 15 to 30, 15 per cent.; from 30 to 50, 17 per cent.; and from 50 to 70, the ratio rises to 29 per cent., and, above 70 years, to 33⅓ per cent.: while on the female, as well as on the male side, phthisis seems to decline with age, being for the first interval of age 24 per cent.; for the second, a little more than 17 per cent.; and for the third, about the same, 16·4; and for the fourth, only 5 per cent. Now the conclusion to which these facts lead, viz. the superior prevalence of morbus cordis, as compared with true phthisis, at advanced ages, is confirmed by several passages in the classical work of Sir James Clark, especially by statements illustrating the influence of sex and age in the production of phthisis. In Chapter VIII tables are given, exhibiting the mortality from phthisis in persons above 15, in seven cities of Europe and America, which show that in almost each city there is a pretty uniform decline in the ratio of deaths from phthisis, from 20 years to extreme age; and the facts furnished by the excepted city, viz., Berlin, are at least a century old, being taken from Süssmilch. In Edinburgh the ratio declines from ·285 at 20 years to ·052 above 60 years; at Nottingham, from ·416 to ·017, in the same period of time; at Chester, from ·245 to ·054; at Carlisle, from ·290 to ·097; and at Paris, according to Louis, from ·325 to ·042; while the general average decline was from ·285, or 28.5 per cent., at 20-30, to ·078, or 7·80 per cent. above 60.

"The following unpublished table, deduced some time since by my brother, Dr. G. Clendinning, now not in the profession, from observations registered at the Mary-le-bone Infirmary, confirms the results to which Sir J. Clark's inquiries have led him.

"Of 1044 deaths from phthisis occurring in the workhouse and infirmary, jointly, of the parish of Mary-le-bone, between May, 1821, and December, 1835, the distribution according to age was as follows:—

	Number of Deaths from Phthisis.	Per centage Proportion at each Age.		Number of Deaths from Phthisis	Per centage Proportion at each Age.
Under 5 years	70	8·33	From 50 to 60 years	121	11·59
From 5 to 10 "	17		" 60 " 70 "	97	9·29
" 10 " 20 "	53	5·08	" 70 " 80 "	45	4.31
" 20 " 30 "	247	23·66	" 80 " 90 "	7	0·67
" 30 " 40 "	223	21·36			
" 40 " 50 "	164	15·71	Total -	1,044	100·

"According then to the above, and Sir James Clark's table, the distribution of phthisis according to age is nearly such as I have stated, viz., phthisis declines in frequency soon after puberty, and has been comparatively rare in middle life; when it is for the most part superseded, as I conceive, in frequency and fatality, by morbus cordis; and in extreme age it has disappeared nearly altogether. It is to be regretted that, with respect to morbus cordis, I am precluded from producing a similar confirmation of my results, partly owing to the frequent exclusion of aged people from hospitals, and partly owing to the neglect of instrumental means of *post-mortem* diagnosis, and the confidence misplaced by pathologists in their manual and visual skill."

61. *A Statistical Inquiry on Fever.* Dr. A. S. Thomson has collected and published in the *Edinburgh Medical and Surgical Journal*, for July, 1838, some very interesting statistical information respecting fever in Great Britain, and has endeavoured to ascertain from these sources the prevalence, susceptibility, intensity, and prognosis of the disease. The details are too copious to be inserted entire,

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and do not admit of abridgment, but the following are the results as summed up by the author.

1. That the annual ratio of deaths from fever in London, have decreased since the commencement of the 18th century. 2. That the susceptibility to be attacked by fever is greatest among individuals under 10 years of age, and from 20 to 30. 3. That the period of life during which the highest ratio of mortality occurs from fever is from 40 to 50. 4. That there is no very apparent difference in regard to one sex being more susceptible to fever than the other. 5. That the annual ratio of deaths by fever is nearly twice as great among the male as the female population. 6. That there is about 1 death for every 15 persons attacked by fever. 7. That the intensity of fever increases with the age of the patient about 34 per cent. every decennial advance in life. 8. That attacks of fever are one-third more intense among males than females. 9. That fever is most prevalent from July to December inclusive. 10. That the intensity of fever is much greater during January, February, March, April, and May, than at any other part of the year. 11. That during those months fever is most prevalent, the temperature and quantity of rain is considerably greater than during those months fever is not so prevalent. 12. That during those months fever is most intense, the temperature and quantity of rain is comparatively low. 13. That medical treatment has a powerful effect in lessening the danger or number of deaths from fever. 14. That early medical treatment shortens the duration of fever. 15. That the mean duration of fever among individuals under 40 is shorter than among those above that period of life. 16. That the general prognosis of fever is favourable, there being 14 chances to 1 that the patient will recover. 17. That the prognosis of fever becomes less favourable as the patient is advanced in life, the intensity of the disease being nearly twice as great at 41 years of age as at twenty-one. 18. That the prognosis of fever is one-third more favourable among females than males. 19. That the prognosis of fever is more favourable from June to December, than from January to June. 20. That the prognosis of fever is one-half more favourable among patients who come under medical treatment before the 7th day of the disease, than those who are admitted at a later period. 21. that the prognosis of fever is unfavourable when there are cerebral or thoracic complications. 22. That the second week of fever is the most dangerous. Out of 1000 cases passing through this week 82 died.

62. *Proportion of the Sexes at birth in legitimate and illegitimate children.* The fact of there being born a greater number of male than of female children is a curious and inexplicable one, but it is still more curious that the number of males is greater among children born in wedlock than among illegitimate children. In France, it appears from the registers of fifteen years from 1817 to 1831, which embrace more than ten millions of births, the absolute proportion of boys to girls is, 106.5 of the former to 100 of the latter. In the legitimate children the proportion is 106.7 boys to 100 girls; and among the illegitimate children 104.8 boys to 100 girls. The results are the same in Austria, Prussia, Sweden Wurtemburg, and Bohemia as in France, as is shown by the statements published by Professor Bernouilli of Basle.

The list of births and deaths in Berlin for the month of March, 1838, exhibit the same fact. Thus there were born this month 875 infants, of which 472 were boys aud 403 girls, The number of illegitimate births were 129, of which 68 were girls and 61 boys.—*Bulletin Général de Thérapeutique*, August, 1838.

ANIMAL CHEMISTRY.

63. *Presence of Quinine in the Urine of persons who had taken it in large doses.*—The presence of quinine in urine was first detected by M. Lavallee, in 1836. More recently, (May, 1838,) M. Quevenne detected this substance in the urine

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of a patient affected with malignant intermittent fever, to whom it had been given in large doses.—*Bull. Gén. M. Thérap.* Aug. 1838.

64. *Analysis of the blood of a diabetic patient—detection of sugar in it.*—Until very recently it was supposed that the serum, even in the most violent and lengthened cases of diabetes, did not contain any sugar. Some late experiments of Mr. M'Grigor, of Glasgow, seem to show, however, that sugar is present, not only in the blood and urine, but also in several secretions and excretions. Ambrosiani says he has succeeded in separating sugar from the serum of diabetic blood in a crystallizable state.

Dr. G. O. Rees, in an interesting article in *Guy's Hospital Reports* for October, 1838, has given a process by which he has obtained sugar of considerable purity from the serum of a diabetic patient. The process is as follows:—"The mass of blood* is to be evaporated to dryness, over a water bath; the dried mass to be comminuted and digested for several hours in boiling water; the aqueous solution is to be filtered off, evaporated to dryness, and the dried residuum digested in alcohol of sp. gr. 0.825; the alcohol solution thus formed is to be filtered, or carefully poured off, evaporated to dryness, and the dry mass treated several times with rectified ether, which dissolves out urea, and also some fatty matter, leaving behind the sugar, in admixture with osmazome and chloride of sodium; this mass, on being dissolved in alcohol, and the solution allowed to evaporate spontaneously in a flat glass dish, affords mixed crystals of alkaline chloride and diabetic sugar; which are easily distinguishable from each other, and allow of being separated mechanically, by shaking them up in alcohol, when the chloride sinks; and the sugar, being principally collected above, may be removed for examination by careful use of the spatula; the alcohol must not, of course, be allowed to remain long in contact with the crystals, as it would re-dissolve them.

The following is the analysis of 1000 grains of diabetic serum obtained for Dr. Rees by Dr. Bright. The sp. gr. of this patient's urine was 1048; and the contents of the serum as follows:

Water	90.850
Albumen (yielding traces of phosphate of lime and oxide of iron, on incineration)	80.35
Fatty matters	0.95
Diabetic sugar	1.80
Animal extractive, soluble in alcohol, urea	2.20
Albuminate of soda	0.80
Alkaline chloride, with traces of phosphate Alkaline carbonate, and traces of sulphate, the results of incineration	4.40
Loss	1.00
	1000.00

Dr. Rees would wish the proportion of diabetic sugar given above to be considered merely in the light of a close approximation, as it is impossible to separate it completely from impurity; and, moreover, the loss sustained by it during manipulation, which must be considerable, does not admit of estimation.

It will be observed, on comparing this analysis with that of the serum of healthy blood, that we have here a great excess of matters soluble in alcohol, while the albuminate of soda is rather less than in health. The alkaline salts are also very small in proportion, being only 4.40 grs. in 1000 grs. of serum while in health they amount to from 7 to 8 grs. per 1000.

* 12 ounces were used in his experiments.

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MISCELLANEOUS.

65. *Animal Magnetism in London.*—In a former Number of this Journal, (August, 1838,) we mentioned that animal magnetism was gaining numerous proselytes in London. The impression which it made there, seems to have been principally due to the ingenuity of two accomplished actresses, Elizabeth and Jane O'Key, though something must be ascribed to a very considerable degree of credulity (or as our phrenological friends would say a large development of the organ of wonder) in those who witnessed the exhibitions of those women at the University Hospital. The tricks of these actresses have now been fully exposed by the experiments of Mr. Wakeley, the editor of the Lancet, as will be seen from the following statement:

Experiments on Elizabeth O'Key.—After some of the often-repeated experiments had been performed by Dr. Elliotson, with various results, it was proposed by the Doctor that the metal, *nickel*, should be used, the effects of which he said had been found by him to be, and would now prove to be, quite astounding. A piece of nickel was produced by the Doctor, of about three-quarters of an ounce in weight, and of an oval form, and also a piece of lead, of nearly the same shape and smoothness, but somewhat larger. Elizabeth O'Key was then seated in a chair, being, as was stated, in the "ecstatic delirium." A piece of thick pasteboard was placed in front of her face, and held in that situation by two of the spectators. By this contrivance it was rendered impossible that she could see what was passing either below or in front of her. Mr. Wakeley being seated directly opposite to the girl, and at a short distance from her, received the lead and nickel from Dr. Elliotson, in order that he might rub the two on her hands in such a manner that from merely touching the substance, or from its form, it would be impossible for her to decide which of the two was being used. Dr. Elliotson had, as has been stated, previously described the effect of the magnetic nickel to be of a most extraordinary character, and said at the same time, with much earnestness, that the lead might always be applied with impunity, as no magnetic effect ever resulted from the application of that metal to the skin.

The substances were then applied to the hands of the girl. First the lead was applied to each hand, alternately, but in a manner which might have led the girl to believe that both metals were used. No effect whatever resulted from these applications. After the expiration of a considerable period, the nickel was employed, having been received from Dr. Elliotson, who for some time had held it in his hand in order to charge it strongly with the magnetic influence. By this proceeding the metal was necessarily heated to the temperature of the skin. Mr. Wakeley had previously thought it right to hold the lead in his hand, and heat it in a similar manner. In consequence of this obviously necessary precaution, no indication was offered to the mind of the girl by which it could be guided, during the experiment, by the mere temperature of the substances which were employed.

The nickle was now used, precisely as the lead had been applied. There was a pause. The exepected results did not appear. After, probably, a minute had elapsed, the lead was again used; and then again; and after the last application of the nickel, the lead having been repeatedly employed during the interval, the face of the patient became violently flushed, the eyes were convulsed into a startling squint, she fell back in the chair, her breathing was hurried, her limbs were rigid, and her back and abdomen assumed the position which are produced in an attack of opisthotonos. In this state she remained during nearly a quarter of an hour. Certainly that time elapsed before the condition of the patient appeared to warrant a repetition of the experiment. A short conversation then ensued between Dr. Elliotson and Mr. Wakeley, as to the cause and reality of the symptoms. The Doctor contended that the effects clearly resulted from the application of the magnetised nickel, but that they had not come on with their usual rapidity. Mr. Wakeley expressed a contrary opinion, and wanted to know of what value the experiments could be if there were nothing

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like certainty in the results, and if the effects were to be attributed to one metal so long after another had been employed, as on that occasion. Ultimately it was determined that another experiment should be tried with the nickel, Dr. Elliotson suggesting that that metal, in its magnetised state, should alone be employed.

Mr. Wakley was now again the operator, and before the experiment was tried he stated, privately to Mr. Clarke, that instead of using nickel only, he would not on this occasion employ any nickel, and desired Mr. Clarke to take notice of the fact, that he would put aside the nickle, unperceived by any other person, the moment that it should be handed to him by Dr. Elliotson, and before either of his (Mr. W.'s) hands should be allowed to come in contact with those of the patient. The experiment was then again performed. Mr. Wakley had taken the nickel from Dr. Elliotson, and put it on one side, when it was taken, unseen by any other person, by Mr. Clarke, who placed it in his waistcoat pocket, and walked with it to the window, there remaining during the performance of the experiment. Mr. Wakley employed both hands, but his fingers were so held that it was impossible for any person excepting the operator to know what he was holding. Presently, on applying the substance which he held in his left hand to the right hand of the patient, the pasteboard being again held before the eyes of the girl, Mr. Herring, who was standing near, said, with much sincerity of feeling, in a whisper, but loud enough to be heard at a short distance, "Take care; don't apply the nickel too strongly." Scarcely had these words escaped from his lips, when the face of the girl again became violently red; her eyes were fixed with an intense squint; she fell back in the chair; a more evident distortion of the body ensued than in the previous paroxysm; the contractions of the voluntary muscles were more stongly marked, producing a striking rigidity of the frame and limbs, and the shoulders were thrown back to the utmost, the spine displaying as complete a bow as in an attack of opisthotonos: in a word, the severity of all the symptoms appeared to have undergone marked increase. Dr. Elliotson again observed, that "no metal other than *nickel* had ever produced these effects; that they were most extraordinary;" in fact, that "they presented a beautiful series of phenomena." This paroxysm lasted during upwards of half an hour, and was admitted by all who were present to be much more violent than the one which had preceded it.

Mr. Wakley now suggested that the girl should retire into an adjoining room, where her sister was waiting, as he was anxious to make a statement to Dr. Elliotson in her absence. The girl objected to depart, and therefore her sister was called from the adjoining room, and the gentlemen retired into that room. Mr. Wakley then said to Dr. Elliotson, "that he felt it to be his duty to state, that the Doctor was entirely deceived respecting the character of the experiments and the cause of the symptoms. That all present had been witnesses of the violent effects which appeared to result from the application of the nickel to the hand, and had heard Dr. Elliotson state that such extraordinary symptoms could be produced by no other magnetised metal, whereas he had not used nickel on that occasion; he had not even *approached* her with it; but that on the instant that it was handed to him by Dr. Elliotson he had put it aside, unobserved, and had merely rubbed upon the skin of the girl a piece of lead and a farthing, which he had respectively held in either hand, but that the metals were so held that he has certain that no person could discover what he was applying."

Dr. Elliotson replied, that "he saw the nickel used; that Mr. W. must have touched her with that metal without knowing it himself; that he was certain of the fact, and that he was positive that the effect could be produced in no other way."

Mr. Wakley then said that there was a gentleman present who could confirm the accuracy of his statement—a witness in fact, who had the nickel at that moment in his pocket, and had stood with it at the window during the whole of the time that he was applying the lead and the farthing to the hands of the girl.

Dr. Elliotson again declared that this was impossible, when Mr. Clarke produced from his pocket the piece of nickel, and said that it had really been there

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during the whole of the experiment, and that it had not been near the girl during the entire trial.

After a somewhat lengthened conversation Dr. Elliotson suggested that the experiment with the nickel should be tried once more. This proposition was consented to; and during the performance of the experiment Dr. Elliotson remained in the other room, while Mr. Wakley, Mr. Herring, and Mr. Clarke, went to the patient to renew the operation. Again was the nickel handed privately to Mr. Clarke, and the lead and farthing were applied as before, with the pasteboard held in front of the patient's face. In three or four minutes there was a re-appearance of the flushed countenance, the staring eyes, the rigid limbs, the bent back, and the distorted frame although *no nickel had been used*—nothing, in short, but the lead and the farthing.

A report of these results was conveyed to Dr. Elliotson and the gentlemen who had remained with him, when Dr. Elliotson said that the occurrence was most extraordinary; that he could not at that moment account for it; and that he had no doubt that an explanation could soon be found which would remove all appearance of anomaly in the results. He would, he said, again suggest that the nickel should be re-employed; and as this request was so urgently made, Mr. Herring, Mr. Wakley, and Mr. Clarke, again visited O'Key, for the purpose of proceeding with the trial, but instead of using the nickel, the lead and farthing were again employed, with the same results as before. There was another fit. Afterwards, when the girl had recovered from the apparent paroxysm, Mr. Wakley suggested that the magnetized nickel should be rubbed over both hands freely, on the skin, in different places, but not exactly in the manner in which the lead and farthing had been employed. No effect was produced by this application of the nickel.

On hearing a further report of the effects which appeared to arise from the use of the lead and the farthing, and the absence of effects when the nickel was really used, after the other experiments had been concluded, Dr. Elliotson candidly admitted that he "could not explain how the thing had occurred; it was most extraordinary, but still he had not the slightest doubt that the whole would yet admit of a satisfactory explanation."

Mr. Wakley, on the other hand, contended that what had been done was, in his opinion, perfectly conclusive with reference to the character of the supposed phenomena, and that he did not consider that a single additional experiment could ever be necessary, in connection with such an inquiry.

Similar experiments, and with similar results, were again made on the 17th, and Jane O'Key, the other sister, also subjected to scrutinizing trials with mesmerized water, sovereigns, &c. &c. It is sufficient to remark, that on proper precautions being used, all the experiments totally failed.—*London Medical Gazette*, September, 1838, and *Lancet*, September, 1838.

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66. *Animal Magnetism in Paris.*—Animal magnetism has met with as severe a blow in Paris, as from the preceding article, it will be perceived, it has in London.

During the discussion which ensued on the report of the last commission appointed by the Academy of Medicine, M. Burdin, a member of the Academy, offered a prize of 3,000 francs "to any one who could produce a person capable of reading without the assistance of eyes, or of light, or of the touch. The decision was to be left in the hands of a commission to be appointed by the Academy; but only one candidate for the munificent premium appeared. A Dr. Pigeaire, of Montpellier, wrote that his daughter, a girl of fourteen years old, could accomplish the feat, when placed in the magnetic state by her mother. A commission, consisting of MM. Double, Husson, Chomel, Morreau, Louis, Dubois (d'Amiens), and Gerardin, was therefore at once appointed to inquire into the case, and Dr. Pigeaire came up from Montpellier to Paris.

"M. Burdin allowed, at the request of Dr. Pigeaire, that the book from which his blind-folded daughter was to read, might be placed in the light, and that touching it might be permitted, so far as that sense was not made supple-

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mentary or subsidiary to sight; and he left it to the commission to decide whether the bandage employed to blind-fold the patient with, was satisfactorily capable of excluding all light. The father presented one to the commission, with an offer of a thousand *sous* to any one who, in the normal state, could read with it on. It was to consist of three pieces of black velvet: the eyes were to be padded over with cotton, and then covered below with a double band of fine linen. If this kind were satisfactory, they might themselves have another made, but it must be of the same form, lest a disturbance of the habit which the girl had fallen into, might prevent the full development of the clairvoyant state, and of the same materials, because it had been found that velvet did not obstruct the passage of the mesmeric fluid. If, however, such another was made, it would be necessary, wrote Dr. Pigeaire, that his daughter should make first a trial of it, in presence of the President of the Commission and the Secretary of the Academy; and if Madame Pigeaire was satisfied with it, it should then be delivered into the custody of the President, to be kept under lock and key till the commission met to make their decision. He proposed also that the commission should be divided into two parts; that if a first experiment failed, four trials should be allowed in each series; but that if one experiment succeeded, the commission should for that time consider its mission ended. The lower edge of the bandage, he granted, should be glued with silk to the cheeks and sides of the nose; and the book was to be covered with a flat piece of glass, which must be allowed to lie quite steady, and to keep the book quite open.

"A meeting was now fixed, and a bandage was offered by the commission to M. Pigeaire, in accordance with what M. Burdin required of them. But he refused it, saying that it was necessary there should be no space between the bandage and the eyes, which ought to be in immediate contact. They therefore offered to let him pad it, so that it might exactly fit and come in contact with the eyes: he refused, and said that he had tried numerous descriptions of bandage for blindfolding his daughter in vain; that all had produced bad symptoms in her, when in the somnambulic state, except his own, which he now offered, and which was the only proper one to be used, and could not be replaced. The commission then offered that she should wear the bandage which he presented, provided she were covered by a moveable veil, which should intervene between her face and the book she was to read from. This, however, he also declined, on the ground that he had reason to believe that she read with the nerves of her face; and it was then suggested that a screen should be adapted with two conical appendages which should permit the light reflected from the book to fall on her cheeks, but should prevent it from coming to the lower edge of the bandage; but this condition he in like manner refused to submit to.

"He answered further to the inquiries which were made, that she would begin to read in from a quarter of an hour to an hour and a half after the application of the bandage, or the commencement of the magnetic state; that it was necessary the book should be placed either on her knees or on the lath immediately before her; and that she must be allowed to place it as she liked, but that she could never read from it if it were held directly before her on a level with her eyes. They observed that when the bandage was put on over the girl's eyes, she used great exertions in moving the muscles of her face and lips, as if to displace it; but that, he said, was sometimes her habit, when in the magnetic state, though she could see just as well when she did not do so as when she did. He added, that at one time she used to be able to read from a book which was shut up in a box; but when the commissioners said they should deem it perfectly satisfactory if she would do that, he answered that he could not be answerable for her possessing the same power now. He said, too, that it would throw her into convulsions if the fingers of one of the commissioners were placed on the lower edge of the bandage over her eyes while she was trying to read.

"Hearing all this, the commission declined the inquiry, because M. Burdin's demands were not at all complied with, the bandage for blindfolding not being in their opinion sufficient for the purpose, and the position in which the book

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was to be placed being favourable to the transmission of light to the eyes under the lower edge of the bandage.

"The report detailing the above proceedings, and from which our abstract of them is taken, was read before the Academy on the 14th ult., when M. Cornac, who had been present at the meeting between the commission and M. Pigeaire, said that Madame P. had, in his presence, placed the several pieces of velvet in succession over her daughter's eyes, and had then glued two broad bands of English taffetas from their lower edge to the cheeks, and two more by the sides of the nose, in the angles between it and the eyes. The girl being then magnetized, he took a volume of Malherbe's works from his pocket, and placed it before her in the manner required. She grew impatient, and appeared annoyed and harassed; at last she read slowly and with difficulty, two couplets of an ode, all the time frequently putting her hands to the bandage, and working actively and strongly with the muscles of her cheeks and lips. The bandage was then removed from above downwards; and if, said M. Cornac, we could not see any gaps in it, we will not assert that there were none. He himself, however, could not distinguish light from darkness when it was put over his eyes; and M. Gerdy could only tell that distinction. M. Velpeau was able to see under its lower edge sufficiently to distinguish a card, the ace of diamonds. M. Dubois said that it was at the first glance evident that light could be admitted to the eyes under the edge of the bandage for blindfolding, and that there was ample confirmation of this in the refusal to permit it to be kept close by the fingers, or be covered with the screen."—*London Med. Gaz. for Sept.* 1838.

67. *Vaccine Virus fresh from the Cow.*—Not long after the discovery of vaccination, it was suggested, that the virus, in its transmissions through numerous human systems, might become deteriorated, and the protective power it afforded, thus rendered imperfect, or altogether null; and it was recommended that it should at certain times be regenerated by resorting again to its original source.

As mentioned, however, in our last No., the original source was lost almost immediately after it was discovered, and it is only within a short period that it has again been met with. In addition to the localities where we have already stated it to have been found, it has very recently been discovered in Gloucestershire, England.

Mr. Estlin, of Bristol, who has in vain been endeavouring for several years to renew the lymph from its original source, has obtained some from this last locality, through the kindness of a friend who sent him some taken from the hand of a person who had contracted sores by milking diseased cows. Mr. Estlin has since employed this virus, and has distributed the lymph thus obtained with a desire to propagate it.

A portion of the lymph from this source, ten or twelve removes from the cow, has been received in this city by Dr Dunglison, and has been employed by Dr. Bridges, one of our city vaccine physicians, who seems satisfied of its genuineness. Some has likewise been received in New York and Boston, and been used there. What confidence is to be reposed in this new virus can only be determined by experience.

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AMERICAN INTELLIGENCE.

Case of Extirpation of the Parotid Gland. By J. RANDOLPH, M. D. Lecturer on Surgery.

We are happy to state that this operation was successfully performed on the 19th of December, by Dr. J. Randolph, in the presence of Drs. Coates, Harris, Norris, J. Rhea Barton, W. E. Horner, and a large audience of physicians and students of medicine. A friend who was present has been so kind as to furnish us with the following account of the case.

Dr. Randolph premised the operation by remarking, that the disease had existed for a year, and that the Parotid Gland was probably the organ affected, though this point could only be satisfactorily ascertained after the removal of the diseased mass. He stated that the tumour was in a state of rapid increase, which would augment the difficulties of the operation. With regard to the question, as to whether the Parotid Gland had ever been removed successfully, he gave as his opinion that it was an operation which had been frequently performed, not only in Europe, but in this country, and proceeded to mention the names of a number of surgeons who had reported cases. He stated that for a long time he had thought that a scirrhous, or indurated parotid gland, could be more readily removed than when in a healthy state, and mentioned that Dr. N. R. Smith coincided with him in this opinion.

In performing the operation, as the left parotid was the one affected, the head was inclined to the right side, and an incision made from the zygoma down to the edge of the sterno-cleido mastoid muscle, a second one at right angles to this, and the flaps dissected up. The facial artery was then secured, and an attempt was made to raise the lower edge of the tumour and secure the external carotid where it enters the gland; this was found, however, to be attended with so much difficulty, in consequence of the close adhesions, that it was determined to dissect it from its attachments from above downwards; in doing this it became necessary to secure the temporal and internal maxillary arteries, besides several others of smaller size; the carotid was cut, in dividing the last adhesions of the tumour, and instantly secured by means of Dr. Physick's needle and forceps. The external jugular vein was cut and secured at each end. The periosteum covering the angle of the jaw was absorbed, and the adhesion to the maseter muscle was so strong that part of it was removed with the tumour.

The operation lasted 59 minutes, but little blood was lost and the patient bore it remarkably well.

After a careful examination of the parts, Dr. Randolph stated to the class that it was the unanimous opinion of the Surgeons and Anatomists present, that *the Parotid Gland was completely extirpated.* The ligatures have all, except one on a small vessel, come away; the cavity is filled with healthy granulations, and the patient's general symptoms are perfectly favourable.—January 15th, 1839.

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Loss of Testicle. By Samuel Webber, M. D., of Charlestown, N. H.

A lad of eighteen was in the woods mending a brush fence; wishing to lop some branches from a tree, which stood in the line of the fence, he got upon the top of the latter and struck at them with his axe. The support upon which he stood gave way suddenly under the effort, and he came to the ground. In his descent, the scrotum, as also the contained testicle of the left side, was caught and penetrated by a sharp projecting snag. As his descent continued, the testicle, impaled upon the point of the snag, was torn from its envelope, stretching the cord, as the youth said, half a foot or more, when this last broke and he felt fainting to the ground. After laying, as he supposed, half an hour at least, he came to, and getting upon his legs set out for the nearest house, about a mile distant. The bleeding was considerable, and from the exhaustion of this and the pain consequent upon motion, he fainted once or twice before arriving at the house. Here he was kindly received, placed upon a bed, his wound bathed with cold water, and a physician sent for. Upon my arrival, the bleeding had entirely ceased, and most of the pain. The wound of the scrotum in its corrugated state, was about an inch long, and a small, firm clot of coagulated blood had formed about the extremity of the divided cord. This it seemed unnecessary to disturb, and nothing more was done than to apply a compress of lint, a few strips of adhesive plaster, and a suspensory bandage, enjoining quietude in the recumbent position, and light diet. In a few days he recovered without any particular difficulty.

On the use of Tobacco in certain cases.—The following extract from a letter we have lately received from our venerable correspondent, Dr. Alexander Somervail, of Virginia, may furnish some useful practical hints.

"I have suffered from diseased nerves in various ways. Some, such as I have never heard of, and which has introduced an application that I think may be useful in many distressing circumstances. The points of the two middle toes on each foot are affected with a burning sensation, increasing every afternoon, rendering washing painful, sometimes much so with a sense of swelling and weight, very unpleasant; the healthy feeling gone; this threatens my fingers too—when looked at, the point is a little red and painful to touch—it came into my mind to apply a snuff plaster; this produced immediate relief; but I cannot leave it off for more than a week, before the burning returns. Now one toe only resists this application, but is much relieved by it. I have often used this where I used to blister; lately I applied a twist of tobacco softened by boiling, but so as to retain the water, to the side, in a case of pain in the side, with cough, fever, &c., in an aged woman, with speedy relief, and by the help of other remedies, recovery followed where I had no right to expect it. The tobacco applied thus, is more powerful than the plaster. I have used this since the fever of 1815, occasionally—no nausea, &c. is produced, unless the cuticle is abraded; in that case we cannot use the tobacco either way. I had a lady last June, with severe pain in the face, over the antrum; the plaster removed it, and was worn a couple of weeks. Perhaps Tic-doloreux may be relieved by it. A negro man, in hewing timber, struck the corner of his axe into the inside of his knee, which lamed him for two months. When I saw him the cut was healed; the knee enlarged, the leg bent, very painful, and could not be extended. The cut appeared to have touched the tendon of the flexor. I applied the plaster; the pain soon mitigated; he got better daily, and soon admitted the use of a splint to extend the contracted muscles, and is well."

"P. S. The snuff plaster was first prepared by using snuff in place of cantharides, in the preparation of blistering plaster; but as that is not adhesive enough, I have left out the wax in that plaster, and in its place put in empl. lytharg."

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Successful division of the Adductor Longus Femoris Muscle for Deformity and loss of motion in the inferior extremity.—Professor Paul F. Eve has successfully divided, (as we learn from the *Southern Med. and Surg. Journal,*) the adductor longus femoris muscle for the cure of a deformity of the left lower limb, in a robust, muscular man 22 years of age. The deformity, which is not clearly described, seems to have consisted in a shortening of the left lower limb, of about one inch, the thigh being flexed on the pelvis; "the foot turned inwards, and the whole limb inclined in this direction; the foot could not be carried out farther than about twelve inches from the median line of the body." In the internal and upper third of the thigh, there was a *hard substance*, feeling like hempen rope, situated just under the skin. It was about four inches long by one and a half broad. It could be isolated from the surrounding tissues, all of which appeared normal. It was taken for a fibrous degeneration of the adductor femoris muscle, and the shortening of the limb was ascribed to this degeneration.

The disease was of eight years standing, and was attributed to exposure; the patient had, in sporting, sometimes lain all night on the wet ground.

The operation was performed on the 9th of October, in the following manner:—

An incision was made, commencing at the pubis, and cutting upon the internal edge of the affected muscle and extending about five inches in a semilunar direction. The surface of the adductor longus was then exposed, and cautiously divided with the knife and a pair of scissors, about three inches below its origin from the pubis. The upper portion was found to be converted into a fibrous tissue, which slightly grated under the knife, but the portion below the section contracted, so as to separate the cut edges of the muscle about an inch. The muscle was not degenerated throughout its whole extent, but appeared to be in a healthy condition an inch below the point at which it was divided. Two small arteries required a ligature. The wound in the skin was closed by adhesive plaster, and a compress and roller completed the dressing. The patient was put to bed, and a two pound weight attached the next morning to the left foot, and allowed to hang out of the bed clothes over the back of a chair, so as to make traction in a horizontal direction.

There was no material alteration in the length of the limb, until the next day, when it commenced gradually elongating, and at the end of the week this limb had acquired the same length as the sound one.

On the fifteenth day after the operation, the patient walked with scarcely any impediment in his gait, and on the nineteenth day, the patient went home with his extremity of its natural length, and its motions nearly entirely regained.

The cure in this case is creditable to the skill of the surgeon; but the operation has no claim to novelty. The division of the sterno-mastoid muscle for the cure of wry neck, and of other muscles for the removal of similar deformities, is as well recognized a surgical resource, as is the division of the tendo Achillis for the cure of club foot.

Tumour at the base of the cranium, producing amaurosis, exophthalmos, and death.—Dr. S. Littell, Jr., one of our colleagues in the Wills Hospital, read before the College of Physicians, in December last, an account of an interesting case of this character. We transcribe it from the *American Medical Intelligencer.*

"J. B. aged thirty years, by profession a porter, of medium stature and robust frame, applied for admission into the Wills Hospital, in July of the present year. He was afflicted with amaurosis, not wholly complete, for he could still distinguish light from darkness, but there was a certain obtuseness of expression, which seemed to indicate its origin in some serious organic disease; and had it not been for the importunity with which it was urged, his application would probably have been rejected in consequence. He had recently been an inmate of the Pennsylvania Hospital, whence he had been discharged, as he stated, at his own request, that he might seek entrance into an institution founded with more express reference to the diseases of the eye: and I felt reluc-

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tant to send him away, so long as any uncertainty remained of the curableness of his complaint. All doubt upon this subject was removed when time was allowed for a more thorough investigation of the case. He complained of severe pain in the two temples and over the head, aggravated towards evening to such a degree as to deprive him of rest during the greater part of the night; a copious secretion from the nasal cavities of an offensive mucus, passing through the posterior nares, was discharged by the mouth; and symptoms of gastric derangement were also present, the constitution manifestly sympathising with the local affection. Vision first began to be impaired in January, and several physicians had been consulted previous to his admission, the following March, into the Pennsylvania Hospital. He had been once salivated while there, and was now again under the alterative use of mercury. There was no assignable cause for the production of the malady: for though he had been addicted to onanism a year or more before his sight began to fail, this seemed inadequate to explain phenomena which evidently originated in organic mischief. Opium and the abstraction of blood by cupping procured sleep and afforded temporary relief; but had no effect in retarding the progress of the symptoms. The pain was felt over the whole head, but especially in the temporal and occipital regions; he breathed with difficulty through the nostrils; the amaurosis soon became complete, and the eyes unusually prominent. The discharge also grew more profuse, was sometimes mixed with blood, and on two occasions hemorrhage occurred: in one instance to an alarming extent. All hope of improvement from a longer sojourn in the hospital having been abandoned, he was discharged after a few weeks, and I continued my attendance at his home. The subsequent history of this melancholy case may be related in a very few words. The projection of the eyes steadily increased, the palpebra were gradually everted, and the globes nearly protruded from their sockets, and surrounded by the red, swollen and infiltrated conjunctiva, exhibited a sad and revolting appearance. The appetite of the patient, far from being diminished, was morbidly increased; the discharge continued, more puriform in character; a fungous excrescence could be felt in each nostril; but the pain, though still a constant subject of complaint, was happily masked by the attending stupor, from which, however, he could be readily aroused. For the last six or eight weeks of his existence, he was more or less delirious; his appetite decreased, failed altogether, and he became greatly emaciated as the fatal termination grew nigh. Though generally lying in bed, he was still able to sit up, or even to walk about the house; and what is remarkable, evinced a strong desire or craving for ardent spirits, which he had not been accustomed to use when in health; a symptom occasionally noticed as one of the earliest manifestations of insanity. The unfortunate man, reduced to the lowest degree of human wretchedness, a spectacle harrowing to the feelings of his attendants, and the object of compassion to every beholder, at length became comatose; and, after continuing in that state a few days, expired.

"The autopsy, made by candle-light, and under circumstances which precluded a very minute investigation, revealed the following particulars:—The first thing which arrested the attention, on looking at the corpse, was the unusual distance between the inner canthi of the eyes; which, being measured by my friend, Dr. I. Parrish, who kindly assisted in the examination, was found to be two inches and five tenths. On laying aside the calvarium, the vessels of the pia mater were observed to be uncommonly injected; and the cerebrum softened in its anterior lobes, particularly towards their lower portion, but in other respects not deviating from its normal structure. The brain being removed, a firm, irregular tumour was seen projecting from the base of the cranium into the sulcus between the anterior and middle lobes. It appeared to arise from the body of the sphenoid bone, and extended an inch or more in a direction upwards and backwards, pressing upon the optic nerves at their junction, and reaching as far on the right side as the surface of the pars petrosa, to which it was inseparably adherent. In order to obtain a more satisfactory view of its extent and connections, the frontal bone was taken away by sawing across its angular and nasal processes, thereby exposing the cavity of the orbit, and the upper half of the

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tumour. The ramifications of the morbid production, which was at least equal in size to a small orange, were now observed extending into and occupying the neighbouring cavities, the orbits, sphenoidal and ethmoidal sinuses—and reaching below as far as the inferior turbinated bone. The delicate laminæ composing the ethmoid, still further attenuated by absorption, were situated in the centre of the tumour and entirely involved by it; the cribriform plate was absorbed in its posterior margin to a considerable extent, as were likewise the orbitar processes of the os frontis; the whole presenting a sharp, jagged, and irregular outline. The frontal sinuses, which were greatly enlarged and prolonged into the orbitar processes, were filled with a dark-coloured viscous secretion; on the left side, the thin shell of bone separating the sinus from the cavity of the orbit, had also been removed, leaving between them a communication several lines in diameter. The consistence of the tumour varied in different parts; above, and where it was connected with the petrous portion of the temporal bone, it was firm, semi-cartilaginous, and of a whitish colour; its section exhibiting a strong resemblance to that of a scirrhous mamma; beneath the cribriform plate it was softer, and in several places presented a medullary or encephaloid appearance; while the inferior division, which has been described as projecting into the nostril, was of intermediate density, and not unlike a polypous excrescence.

"The structure of the morbid growth left no doubt of its malignant character upon the mind either of Dr. Parrish or myself, but the precise spot in which it originated, is shrouded in greater obscurity; perhaps, however, it would be more consonant with all the facts of the case, to refer it to the sphenoidal or posterior ethmoidal cells.

—

American Medical Almanac.—Dr. J. V. C. Smith, the industrious editor of the Boston Medical and Surgical Journal, has prepared a useful little work, of which the above is the title. It contains a list of the medical schools in the United States, Great Britain, and France, with the names of the professors in each; the titles of the Medical Journals published in this country and in Europe; an alphabetical table of the medicines in use, with their compounds and the doses of each; many prescriptions for particular diseases, and other information of a similar character; is put up in the form of a pocket book, with blank leaves for memoranda. We recommend it to the patronage of the profession.

—

11. *Liquefaction and Solidification of Carbonic Acid.*—Much interest was excited here some two or three years since, by the annunciation that a French chemist, M. Thillorrier, had succeeded in liquifying and even solidifying, carbonic acid. No description however of the means employed, or of the apparatus used was given. Dr. J. K. Mitchell, with the zeal in the pursuit of science for which he is distinguished, immediately undertook to contrive an apparatus for the purpose, and aided by the suggestions of an intelligent pupil in France, and with the assistance of some friends here, has had one constructed, with which he has obtained solid carbonic acid in considerable quantities and has been enabled successfully to repeat most of the experiments of the French chemist and to revise some and correct other of his results.

"The apparatus consists of a generator of cast iron, A, supported by a wooden stand, B, a receiver, F, also of cast iron, connected to the generator by a brass tube, and fastened firmly to it by the stirrup screw K.—H, I, J, are stop cocks, G the nozle of a pipe, L a glass level-gauge, and S, M, R, a pressure-gauge.

"The generator is 20 inches long and 6 inches in diameter exteriorly. Its cavity is 16 inches deep, and 3 inches, nearly, in diameter, so that it will hold about 4 pints. The walls are, of course, about 1½ inches in thickness. At the top an aperture of two inches in diameter is closed by a strong wrought-iron screw, the shoulder of which is let in about a quarter of an inch. The collar is of block tin turned to the size of the shoulder of the screw. There is a hole in the head of the screw E for the reception of a long, strong iron bar.

"The copper cup, N, 1¾ inches wide, and 9 inches long, holds about 12 fluid ounces. There is a little handle at the top, and a copper wire at the bottom,

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which make the whole length a little less than that of the cavity of the generator. This cup is used to introduce the sulphuric acid.

"The brass tube between the generator and receiver is divided into two parts of equal length, which admit of being united by means of a conical juncture, kept tight by the stirrup and screw, K, K. Each of these portions of the tube may be closed or opened at pleasure by a stop-cock. One is placed at I, another at J; so that when the receiver is being separated from the generator, the contents of both may be retained. The stop-cocks in common use are inadequate to resist the pressure, and therefore a screw stop-cock is indispensable. It is made to close a small aperture by means of a conical point, and having a double cone, it closes an outlet also when the cock is completely open. so as to prevent the escape of gas by the sides of the screw.

"The receiver, F. is of the capacity of about a pint. The pipe, G, G, turned at a right angle at G, descends so as almost to touch the bottom of the cavity in F. The stop-cock H, G, is similar to I and J. L. is a glass tube connected at each end to a socket of brass, which communicates with the interior of F. It is the gauge for observing the level of the liquid in T.

"The gauge for measuring the pressure is peculiar. Into a wrought iron box, S, are inserted, by screws, two sockets, T and U. The former descends almost to the bottom of the box, which is nearly filled with mercury. Through the axis of the screw X, a small tube passes into the cavity of S, and is continued to the top of it, so as to rise above the mercury. Two strong barometer tubes, S and M, are cemented* into U and W, and hermetically sealed at the upper ends. These tubes are carefully graduated. In one of them, U, a short cylinder of mercury is made to stand at Y at the commencement of the experiment. The other, socket and all, is full of air, as no mercury is introduced into it. A very fine screw at W, enables the operator to regulate the quantity of air in T.

"The tin cup, O, used to collect the solid acid, is covered by a lid, Z, perforated by a pipe, P, whose top is full of small holes. The handle Q, is hollow, so as to fit the end of the pipe of the receiver at G. To secure the hand of the operator from the cold produced by the experiment, the handle is carefully wrapped up in some kind of cloth.

"The apparatus is prepared for use by removing the screw E, and placing 1¼ lbs. of bicarbonate of soda in the generator, A, to which 24 fluid ounces of water are to be added. After making these into a thin paste by stirring, nine fluid ounces of common sulphuric acid are to be poured into the copper cup, N, and that is to be let down by a crook of wire into the generator. After the screw E, has been firmly applied, and the stop-cock, J, closed, the contents of the generator are to be brought into admixture by moving it round to a horizontal position on the swivel, D, which is supported by the wooden frame, B, B. There is a check bar at C. This motion is to be repeated several times. In about ten minutes the whole of the carbonic acid is liberated, and exists in A, chiefly in a liquid state.

"The next step in the process is to attach by means of the stirrup and screw, K, K, the receiver, F, *previously cooled by ice.* The keys, I and J, may then be opened slowly, and instantly the liquid carbonic acid is perceptible in the gauge, L. At the end of ten minutes the communication with the generator may be cut off—when about eight fluid ounces of liquid acid at 32° Fahr. will be found in the receiver.

"By letting this liquid into the box, O, through the pipe, G, a large part of it is instantly expanded into gas, which escapes through the tube, P. The coldness consequent on the enormous expansion freezes another part of the liquid,

* The cement used was made of shell lac 3 or 4 parts, white or crude turpentine 1 part, melted at as low a temperature as possible so as not to make bubbles in the mixture. This cement is very strong, but liable, without great care in the regulation of the heat, to have capillary tubes in it from the vaporization of the turpentine. This defect may be completely corrected by cutting away, when cold, the external mass of cement, and putting on a little common cap cement which melts at a much lower temperature and closes the tubes.

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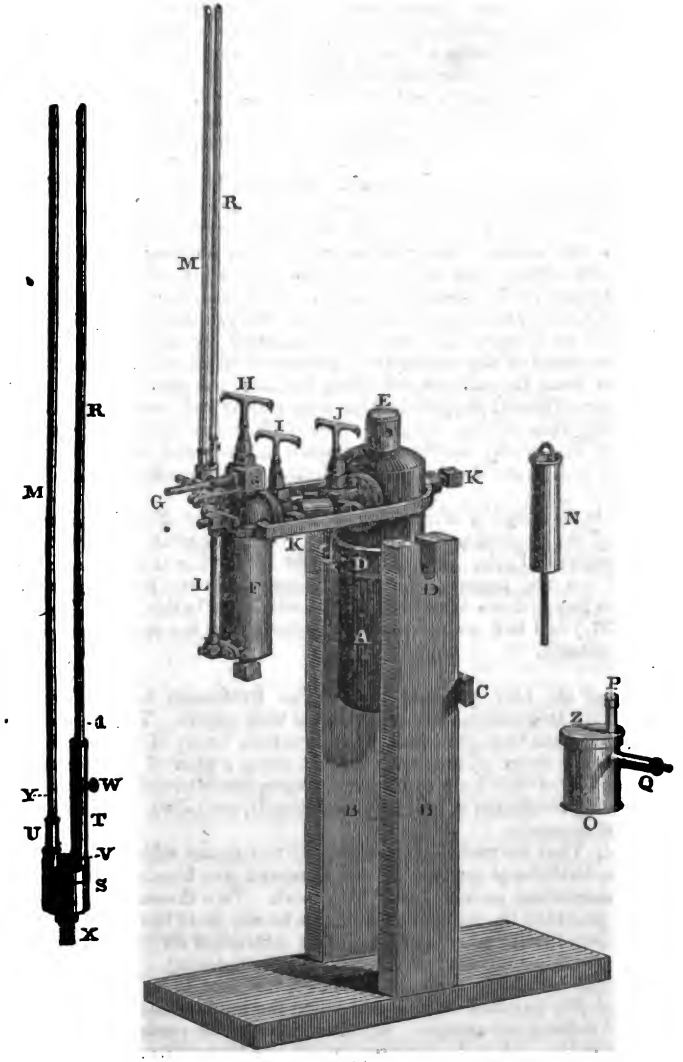
which falls to the bottom of O. About one drachm of solid matter is thus formed for each ounce of liquid."



The solid carbonic acid is of a perfect whiteness, and of a soft and spongy texture, very like slightly moistened snow. It evaporates rapidly, becoming thereby colder and colder, but the coldness produced seems steadily to lessen the evaporation, so that the mass may be kept for some time. The greatest cold produced by the solid carbonic acid in the air was—109°, under an exhausted receiver—136°, the temperature of the atmosphere being, 86°.

The experiments resulting from the great coldness of the new solid are very

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striking. Mercury poured into a mixture of the solid carbonic acid and ether, is frozen in a few seconds. We have seen Dr. Mitchell freeze in this way, nearly a pound of the metal.

"When a piece of solid carbonic acid is pressed against a living animal surface, it drives off the circulating fluids and produces a ghastly white spot. If held for 15 seconds it raises a blister, and if the application be continued for two minutes a deep white depression with an elevated margin is perceived; the part is killed, and a slough is in time the consequence. I have thus produced both blisters and sloughs, by means nearly as prompt as fire, but much less alarming to my patients."—*Journal of the Franklin Institute*, November, 1838.

Forthcoming Work.—S. D. Gross, M. D., Professor of Pathological Anatomy, in the Cincinnati College, has in press, a work on Pathological Anatomy, which he expects will be published early next summer. It will be comprised in one volume octavo, of seven or eight hundred pages, illustrated by six coloured plates, and upwards of one hundred wood cuts. It is to be strictly elementary in its character, and will comprise, first, a summary of the general principles of pathological anatomy; secondly, a description of the normal appearances of each organ and tissue, accompanied by an account of all their lesions. The object of the author is to prepare a work which shall serve not only as a text book for students attending lectures, but also as a work of reference for the practitioner; presenting him with a clear and comprehensive digest of the existing state of the science. The author has spent four years in the preparation of this work, and from his known industry and ability, we may expect his work will prove a valuable contribution to our medical literature.

An Appeal to the People of Pennsylvania on the subject of an Asylum for the Insane Poor of the Commonwealth.—This is a forcible appeal, and we trust that it will be a successful one. We should regret not having any space for extracts from it, had not the necessity for establishments for the insane poor, distinct from those for pay patients been recently insisted upon in this Journal, (See No. for May, 1837,) and had we not reason to believe that the appeal has been extensively circulated.

University of the City of New York.—The Professors in the Medical department of this Institution, have all resigned their chairs. The main causes of this, as appears from their joint letter of resignation, a copy of which is before us, are the protracted delay of the council in adopting a plan of organization, and the determination of this body to levy a tax upon the Medical Faculty.

The following resolution adopted by the council, embodies their *very reasonable* and *modest* demands.

"Resolved, That the rent to be received for the rooms which the medical faculty require, shall be at the rate of one thousand five hundred dollars, for the first year, commencing on the 1st of May next. Two thousand dollars for the second year, provided the number of students be not more than one hundred and fifty, and if over that number, twelve dollars additional for every scholar up to two hundred; (making the sum of $2600 for 200 students). When the number of students shall be 250 or more, but not 300, the rent to be received shall be three thousand five hundred dollars; and when the number shall be 300 or more, four thousand dollars per annum. All alterations to be made at the expense of the medical faculty, and to be the property of the University. The disposition of the matriculation and graduation fees to be settled by the committee of the medical faculty."*

The Medical faculty have shown merely a just sense of professional dignity, in resisting this flagitious attempt to take from them the rewards of their labours.

* This committee, it appears, is a part of the council, and it is stated that it was subsequently determined by the council that the graduation fees should be applied to founding a Museum and Anatomical Cabinet to become the property of the University.

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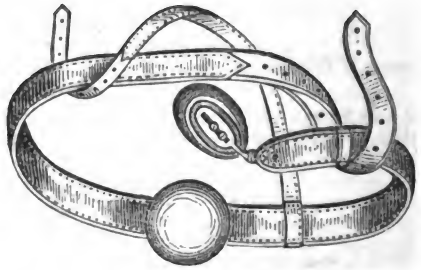

It will be recollected that the Philadelphia Medical Society did, on the 27th day of December, 1834, appoint a committee to investigate the "proposed means of radical cure in hernia."

This subject was taken up by the Society and referred to a select committee of Surgeons, in consequence of the numerous trusses before the public, inviting the attention of the afflicted, some of which *claimed* to effect radical cures in this disease.

This committee, after a patient and laborious attention to the subject for three years, and having had every facility afforded them of seeing the application and testing the merits of all the trusses worthy of notice, have published a report as the result of their labours. This report, which was the result of three years' observation, contains forty-eight octavo pages: it is clear, unpretending, and profound. It appeared in the fortieth number of the American Journal of the Medical Sciences. In their report they say, "all the instruments known prior to the invention of Dr. Chase are defective, and liable to important objections, inasmuch as they do not secure the complete and permanent retention of the bowel, and their action is often attended with serious inconvenience, uneasiness and pain, sometimes producing dilatation of the hernial orifice, and an extension of the evil they are designed to remove. In the expression of this opinion they think they do no injustice to the claims of the other trusses, as they coincide with the testimony of the most distinguished Surgeons in this country and Europe."

"The inventions and improvements of Dr. Chase extend to all parts of the truss and

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its appendages, and his attention to minute and highly important details has been carried to an extent never equalled by any of his predecessors in this branch of surgery. There are six distinct instruments employed by him—1st, the Truss for Inguinal Hernia; 2d, a Truss for Ventro-Inguinal Hernia; 3d, the Femoral Truss; 4th, the Umbilical Truss; 5th, the Ventral Truss; 6th, the Double Truss." Of these instruments the committee say, "they have effected the permanent and accurate retention of the intestines in *every case* of Hernia, that have come under their observation, without inconvenience to the patient, and often under trials more severe than are usually ventured on by those who wear other Trusses—trials which would be imprudent with any other apparatus known to the committee. Some patients wearing these instruments, under the inspection of the committee, have followed the most trying labours of the harvest field; others have travelled hundreds of miles on horseback; some have followed the amusements of the chase, leaped fences and dykes, gun in hand; sailors have been enabled to resume their occupation, yet the committee know of no instance of protrusion under these exertions, when the instrument has been properly applied. For the above facts and conclusions, the committee feel justified in recommending, in strong terms, the instruments of Dr. Chase to the confidence of the profession, as the best known means of mechanical retention in all the varieties of Hernia, and as furnishing the highest chances of Radical cure."—*Extract from the Report.*

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But this is not all; it is found that this certainty and perfection of retention enable the powers of nature to contract the passage, so that after the truss has been worn from nine to eighteen months, the patient generally finds himself *radically cured.* We believe this result will take place in not less than nine tenths of the cases occurring in persons under fifty years of age, and in a fair proportion of cases in later life.

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